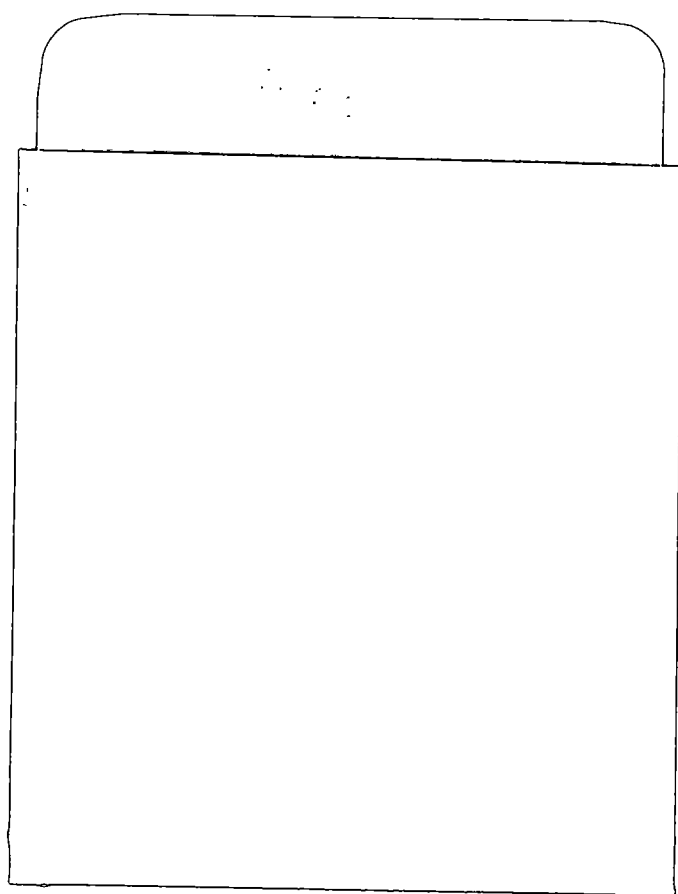


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**GROUND SURVEILLANCE COMPANY,
MILITARY INTELLIGENCE BATTALION
(COMBAT ELECTRONIC WARFARE
INTELLIGENCE) (DIVISION)**



HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 24 JULY 1981

GROUND SURVEILLANCE COMPANY, MILITARY INTELLIGENCE BATTALION (COMBAT ELECTRONIC WARFARE INTELLIGENCE) (DIVISION)

PREFACE

The key to victory in battle is the destruction of the enemy. And to destroy the enemy we must detect, locate, and engage his soldiers, tanks, and infantry fighting vehicles individually and in mass. Our tactical commanders must use all available resources to achieve these goals.

Ground surveillance radar (GSR), organic to the Ground Surveillance Company, Military Intelligence (MI) Battalion (Combat Electronic Warfare and Intelligence (CEWI) (Division) is one of the most reliable resources available for detecting and locating the enemy. Integrated with other resources in planning and employment, GSR finds the enemy. It locates the enemy's soldiers, tanks, and infantry fighting vehicles, and immediately feeds accurate data to the commander and his weapon systems.

The ground surveillance company may be authorized remote sensors (REMS) by tables of organization and equipment (TOE) augmentation. When augmented, REMS teams are task-organized under the ground surveillance platoons. REMS are used to supplement other collection assets and provide an additional source of information for tactical commanders.

This manual describes how ground surveillance radar is used. It provides doctrine for

the organization and operation of the ground surveillance company and describes its employment to maximize the effectiveness of GSR support.

Doctrine contained in this manual is applicable only to the ground surveillance company, MI battalion (CEWI) (division), assigned to an infantry, mechanized, or armored division. However, the concept upon which this company is based, when modified, is readily applicable to other type divisions. The MI battalion (CEWI) (airborne) organizational variation is depicted in chapter 2. The MI battalion (CEWI) (air assault) organization is essentially the same as Armored, Infantry, and Mechanized infantry (AIM) divisions. Doctrine pertaining to the MI battalion is contained in FM 34-10, **Military Intelligence Battalion (CEWI) (Division)**.

Recommendations and suggestions for improving this manual are encouraged. By using DA Form 2028 (Recommended Changes to Publications and Blank Forms), key your recommendations to the specific page, paragraph, and line of the text where the change appears and submit to: Commander, US Army Intelligence Center and School, ATTN: ATSI-DT-RT-L, Fort Huachuca, Arizona 85613.

The words "he," "him," "his," and "men," when used in this publication, represent both the masculine and feminine genders unless specifically stated.

*This publication supersedes TC 30-23, 19 November 1976, and TC 30-26, 30 June 1977.

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CHAPTER 1

THE BATTLE

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Today's battlefields entail extreme violence and lethality combined with rapid, continuous combat. To win while outnumbered and outgunned, commanders must be able to detect, accurately locate, identify, and destroy targets as they enter the maximum effective range of available weapons.

Ground surveillance radar (GSR) provides 24-hour, near-all-weather battlefield surveillance capability. It supports the battalion task force, the brigade, and the division battles. GSR provides accurate, timely, usable combat information for fire and maneuver. Collected information can be included in the all-source intelligence product of the command.

GSR within the division is organic to the ground surveillance company, MI battalion (CEWI) (division). It is deployed throughout the command to support the information needs of commanders. GSR plays a key role in the intelligence and electronic warfare system support of the battle.

The bulk of GSR support within the division is to the battalion task force battle. It is at this level that GSR can influence most the outcome of battle.

THE DIRECT FIRE BATTLE

The battalion task force temporarily combines tanks, mechanized infantry, and support units. Led by the commander of either a tank or mechanized infantry battalion, its combination of forces is designed to meet the brigade commander's concept of operation.

The brigade commander allocates forces to his battalion task forces based on his concept of the operation. His concept includes how he plans to operate based on the mission, enemy, terrain, and the troops available. He tailors his battalion task forces to fight the direct fire battle.

The direct fire battle concentrates on the attack and destruction of enemy weapons and concentrations of troops. The commander attacks enemy forces within range of his direct fire weapons. He uses tanks, infantry weapons, and TOW missile systems to destroy enemy personnel, direct fire weapons, tanks, and infantry fighting vehicles. He reinforces his direct fire weapons with artillery and close air support. The battalion task force commander, in fighting the direct fire battle, relies on combat information.

Combat information is raw data passed directly to commanders for use in fire and maneuver. It is not delayed by interpretation, analysis, or integration with other data. It tells the commander where and what the enemy is, and what he is doing. Combat information permits the immediate engagement of targets by any means available.

Comprising the main collection assets of the task force are the scout platoon, combat and reconnaissance patrols from the company teams, and attached GSR teams. The task force S2 works primarily with combat information, relying on higher echelons to provide him with processed intelligence.

Intelligence differs from combat information because it is processed data that has been validated, integrated, compared or analyzed, and interpreted. It is used in planning and conducting operations.

Information provided to the commander has been described as either combat information or intelligence. Included in these terms are the derivative products of targeting and target development.

Targeting results from combat information. It does not need analysis, but it does include all data essential to the engagement of identified targets. Targeting is reported to fire support elements as rapidly as possible.

Level of Command	Approx Time Beyond FLOT*	Approx Distance Beyond FLOT-out to
BN	0-3 hrs	5 km
BDE	0-12 hrs	15 km
DIV	0-24 hrs	70 km
CORPS	0-72 hrs	150 km
EAC	72+ hrs	150+ km

***FLOT: Forward Line of Own Troops.**

AREAS OF INFLUENCE

Target development is a part of intelligence analysis consisting of the assimilation of various bits of information to facilitate the decision process. It includes locating, identifying, and tracking potential targets to permit engagement at the greatest range possible to wear down or destroy the target.

Level of Command	Approx Time Beyond FLOT*	Approx Distance Beyond FLOT-out to
BN	0-12 hrs	15 km
BDE	0-24 hrs	70 km
DIV	0-72 hrs	150 km
CORPS	0-96 hrs	300 km
EAC	96+ hrs	1000 km

***FLOT: Forward Line of Own Troops.**

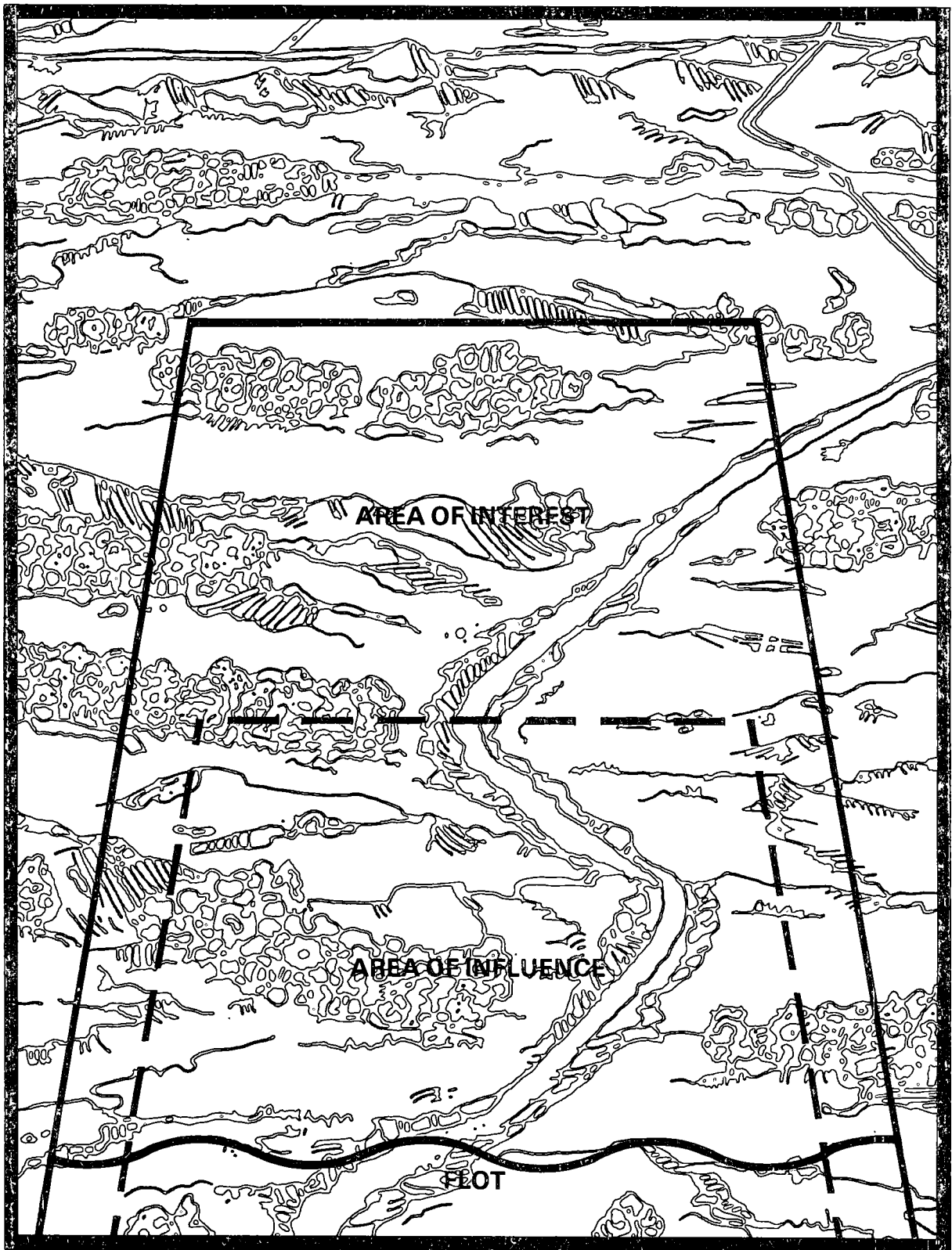
AREAS OF INTEREST

Battalion task force commanders, like all commanders, must think in terms of time and space—time and space necessary to defeat or bypass an enemy force before it can be reinforced. They then view the battlefield in terms of areas: one in which they must exert INFLUENCE immediately, and another which is of INTEREST because enemy forces there can affect future operations. Areas of influence and interest generate commanders' information requirements.

An area of influence is that part of the battlefield where a commander must be able to acquire targets and bring fire to bear against enemy forces, with weapons under his direction. As a general rule, each echelon of command plans for operations within its area of influence.

Battalions fight what they can see and shoot—forces out to 5 kilometers forward of the forward line of own troops (FLOT). Battalion commanders need information in their area of influence in minutes. Defending battalion commanders require information about enemy tanks, armored personnel carriers and infantry fighting vehicles, and concentrations of troops—how many of each, in general terms, and where they are going. Attacking battalion commanders need to know strength and location of enemy company defensive positions, extent of obstacles and mines, and direction of any enemy movement in their area of influence. The primary means used to obtain information in his area of influence are battalion forces—organic elements, attached GSR teams, and artillery fire support teams (FIST). Other division military intelligence elements may operate with battalions. Information collected is reported to their companies, adjacent battalions, the brigade, and in some cases the division.

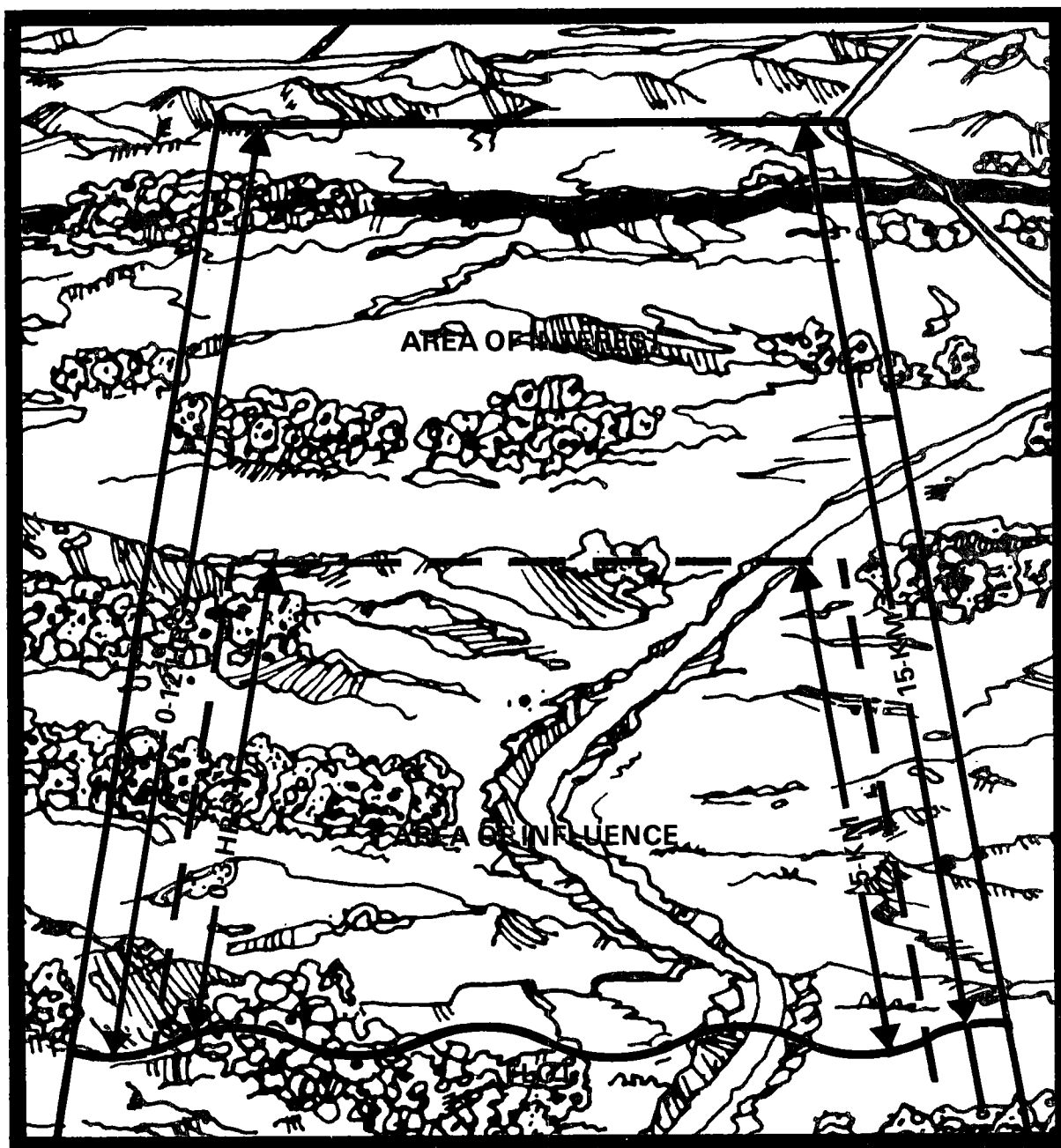
An area of interest is that part of the battlefield which includes and extends beyond the area of influence, in depth and width, to include areas in which enemy forces capable of affecting a commander's future operations are found. Information about forces in the area of interest, beyond the area of influence, generally is used for planning future operations.



AREA OF INFLUENCE/AREA OF INTEREST

Each echelon of command gets information about enemy forces in its area of interest primarily from its next higher headquarters. This information may be produced by other services, other Army commands, national agencies, and allied forces. Information about activity in an area of interest, beyond the area of

influence, must be provided in time to plan for future operations. Battalion commanders can plan operations in detail up to 12 hours in the future. They need intelligence about enemy forces that can enter their operational areas within the next 12 hours. Such forces are found within 15 kilometers of the FLOT.



BATTALION TASK FORCE AREA OF INFLUENCE / INTEREST

Commanders need to know where follow-on enemy battalions are located, in what numbers, and when follow-on forces can be expected to join the battalion commander's direct fire battle.

During combat, areas of influence and interest will vary. They depend on the factors of mission, enemy, terrain, and troops available.

FM 71-2, **The Tank and Mechanized Infantry Battalion Task Force**, provides a detailed description of battalion task force operations.

THE BRIGADE BATTLE

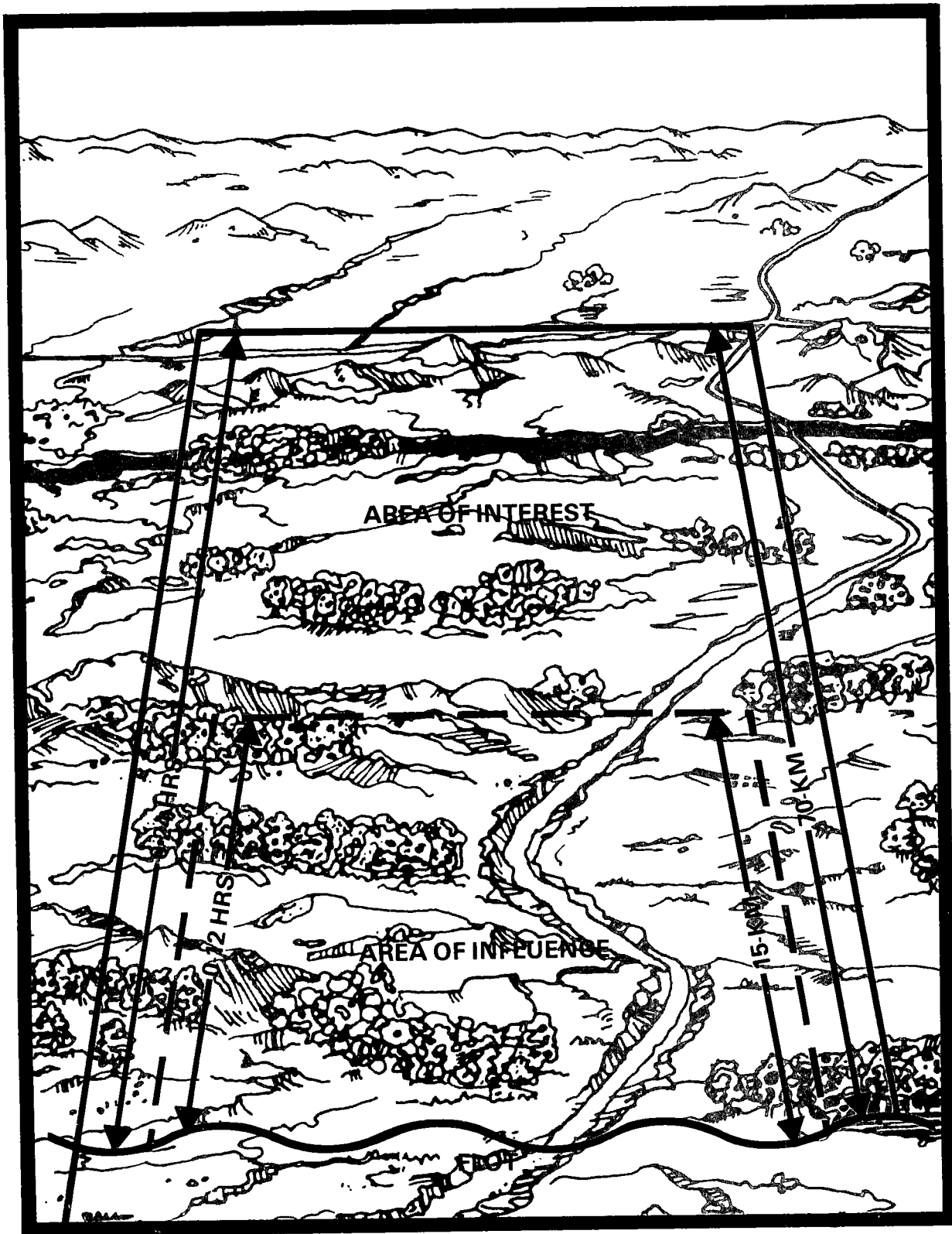
The brigade commander directs, coordinates, and supports operations of his battalion task forces against enemy regiments. He concentrates combat power at critical times and places. He influences the battle through his direct support artillery and allocated close air support sorties.

Defending brigade commanders need information on assaulting enemy regiments – generally, their direction of attack. They also need the same information on follow-on regiments that can affect brigade operations.

Attacking brigade commanders need to know where defending enemy battalions are, where reserves that could reinforce those battalions are located, and what they are doing.

The brigade area of influence generally extends to 15 kilometers forward of the FLOT. Forces within this area can affect the brigade's operations within 12 hours. The brigade commander plans his operations based on information from this area.

The brigade area of interest extends 70 kilometers from the FLOT. To plan for future operations, the brigade commander needs intelligence about additional enemy forces that can close on his operational area within 24 hours. The brigade commander generally relies on division handsoff to brigade enemy forces entering the brigade area of interest. Additionally, the brigade commander may need information about his flanks and rear to protect against enemy envelopment and guerrilla activities. He uses available resources to collect this information.



BRIGADE AREA OF INFLUENCE/INTEREST

THE DIVISION BATTLE

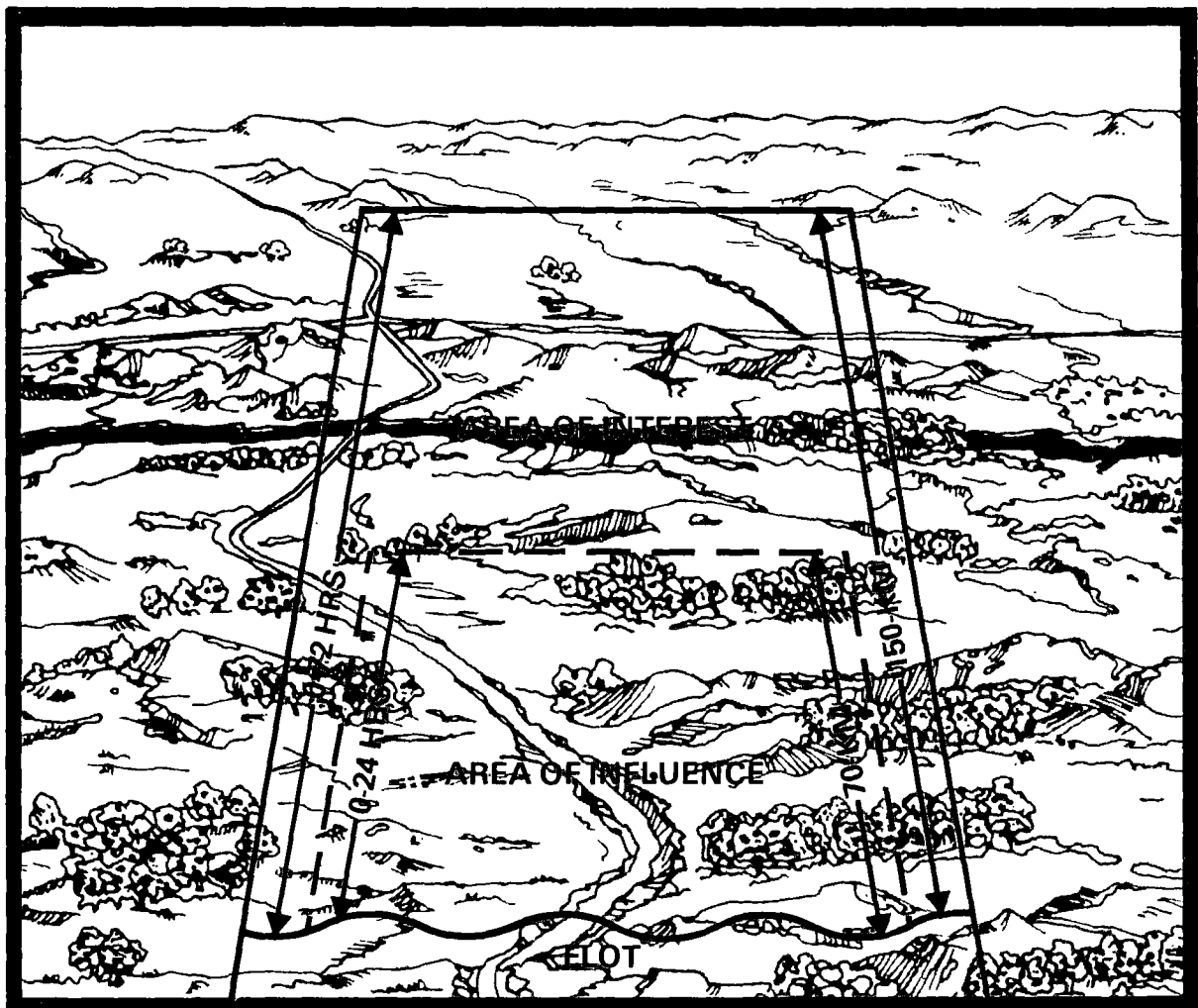
The division commander directs, coordinates, and supports operations of his brigades. His area of influence extends to 70 kilometers and his area of interest extends to 150 kilometers.

Division commanders need to know where enemy regiments are located in their area of influence, what they are doing, what they are going to do, and when. They need locations of regimental and division command posts, artillery, rocket, air defense, radioelectronic com-

bat, and service support forces located in, or moving to, the division's area of influence.

Divisions also need information about nuclear and chemical delivery units, airborne and airmobile units that may be used against the division, air defense elements that can disrupt attack helicopters or offensive air support operations in support of the division, enemy units or resistance efforts in the division rear, and enemy attacks by frontal aviation units.

The division commander employs long-range weapons to weaken follow-on enemy forces before they reach the battalion task force battle. He contributes artillery to the brigade battle.



DIVISION AREA OF INFLUENCE/INTEREST

A division needs locations, strength, and direction of movement of forces in its area of interest, beyond its area of influence, and information on when those forces will enter its area of influence. This intelligence must be provided to division by corps, tactical air reconnaissance, and echelons above corps—to include national systems.

Besides information from the division area of influence and interest, the commander needs information about his flanks and rear.

Flank security is essential during both offensive and defensive operations. Use of surveillance resources allows the commander to use fewer combat forces to protect flanks. Early warning provides time to reinforce flanks as necessary.

Rear area security involves the protection of combat service support elements in the division rear threatened by airborne/airmobile assault, air attack, and attack by guerrilla forces. The enemy's targets in the division rear include logistical, administrative, and command control communications centers, and lines of communication. Attacks on these targets interrupt the projection of support into forward areas. If combat operations are to be sustained, security of the rear area is critical.

FM 71-100, **Armored and Mechanized Division Operations**, describes the division battle in detail.

GSR SUPPORT

GSR provide combat information and targeting data essential to the conduct of the battalion task force battle. In the brigade/division battles, GSR provide vital data concerning flank/rear security and support to the covering forces. GSR organic to the ground surveillance company are deployed by the division commander to provide support in each of the battles discussed in this chapter.

The remainder of this manual describes the employment of GSR the operations of the ground surveillance company, and the training necessary to maintain combat readiness.

CHAPTER 2

ORGANIZATION AND DEPLOYMENT

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MI BATTALION (CEWI) (DIVISION)

The ground surveillance company, military intelligence battalion (CEWI) (division), provides ground surveillance radar support to the division. Organization and deployment of company elements are controlled by the battalion. Deployed elements function within the framework of the battalion's operations. This chapter briefly describes the overall organization and deployment of the battalion and the ground surveillance company. Later chapters describe, in greater detail, ground surveillance company operations.

ORGANIZATION

The MI battalion (CEWI) is found in the infantry, mechanized infantry, and armored divisions. It provides intelligence, electronic warfare, and operations security (OPSEC) support to the division. The battalion has a:

- ☐ Headquarters, headquarters and operations company (HHOC).
- ☐ Collection and jamming (C&J) company.
- ☐ Ground surveillance company.
- ☐ Service support company.

Headquarters, Headquarters and Operations Company

The headquarters, headquarters and operations company consists of a headquarters section, a division tactical operations center

(DTCO) support element, and a battalion operations element.

The headquarters section provides command control for the battalion.

The DTCO support element provides support to the division tactical operations center. It assists the G2 and G3 in analyzing and directing the intelligence, electronic warfare, and OPSEC operations for the division. The DTCO support element has:

- ☐ A collection management and dissemination section.
- ☐ An intelligence production section.
- ☐ An electronic warfare section.
- ☐ An OPSEC management and analysis section.
- ☐ A tactical command post section.
- ☐ A USAF weather section.
- ☐ A direct support terrain analysis team provided by the Engineer Topographic Battalion.

The battalion operations element establishes the battalion operations center. The battalion operations center, comprised of the S3 section and the technical control and analysis element (TCAE), directs battalion operations. The center, controlled by the commander and battalion S3, task organizes and deploys battalion resources based on division tasking. The TCAE provides centralized control of signals intelligence/electronic warfare (SIGINT/EW) resources and maintains data bases in support of SIGINT/EW operations.

The MI battalion S3 section provides an intelligence and electronic warfare (IEW) support element in direct support of each brigade. This element provides detailed coordination with, and advice to, the brigade S2 and S3. It also acts as the interface between the MI battalion and the brigade, and between the MI battalion and its elements deployed in the brigade area.

Collection and Jamming Company

The collection and jamming company is organized with three collection and jamming platoons which can be organized to provide

direct support to each brigade, or direct support to brigades and general support to the division, or only general support to the division. Each platoon collects information, performs limited analysis and dissemination, and jams enemy communications. They also provide interrogation and OPSEC support. FM 34-12, **Collection and Jamming Company, MI Battalion (CEWI) (Division)**, provides a complete description of this company and its operations.

Ground Surveillance Company

The ground surveillance company provides ground surveillance radar support to the division. Its organization and operations are described in this manual.

Service Support Company

The service support company feeds, maintains, and provides communications support to the battalion. Chapter 4 and FM 34-10, **MI Battalion (CEWI) (Division)**, describe the support provided by this company.

OPERATIONS

The MI battalion provides general support to the division. Besides the DTCO support element, the battalion supports the division through an electronic warfare flight platoon, enemy prisoner of war (EPW) interrogation teams, and OPSEC support teams. These elements are retained under battalion control and report information to the battalion operations center or the DTCO support element.

Direct support is provided to brigades by the collection and jamming company. Generally, one collection and jamming platoon supports each committed brigade. The platoons are tasked by the brigade S2/S3 through the IEW support element located in the brigade command post. EPW interrogation and OPSEC support tasking and reporting are carried out without referral to the MI battalion operations center. However, the platoon coordinates SIGINT/EW missions with the battalion operations center (for technical control) and executes the mission. Collected combat information is reported to the brigade S2/S3 through the IEW support element. Other information is reported

to the battalion operations center (the TCAE) for analysis and sanitization. It is then disseminated to the brigade through the DTOC support element.

At times, collection and jamming platoons may be required to support either the division or a battalion task force operation. Such support is usually on a mission-by-mission basis.

Ground surveillance support is provided to brigades, battalion task forces, and other division elements through attachment. Ground surveillance radar teams support the unit to which they are attached, receiving tasking from and reporting information directly to the controlling unit.

All CEWI assets report combat information directly to users by the fastest possible means. Other information is reported by various channels for use in all-source intelligence production. Intelligence then is disseminated on an event-driven basis.

MI BATTALION (CEWI) AIRBORNE/AIR ASSAULT DIVISION VARIANTS

Airborne infantry can conduct a show of force or act as a strategic reserve. It can move great distances quickly to seize key terrain deep in an enemy's rear. A prerequisite for a successful airborne operation is the ability to reinforce and resupply the unit either by air or by a rapid ground advance to effect linkup. Once on the ground, airborne units can be assigned essentially the same tasks as other infantry. See FM 71-102, **Infantry and Airborne Division Operations**, for a detailed description of airborne operations.

The MI battalion organic to the airborne division provides the same support as found in the AIM divisions. The battalion has:

- ☐ A headquarters, headquarters and operations company.
- ☐ Three collection and jamming companies.
- ☐ A service support company.

The HHOC and the service support company provide essentially the same support for the airborne division MI battalion as provided to MI battalions of other type divisions.

The C&J companies collect information, perform limited analysis and dissemination, jam enemy communications, and provide interrogation and OPSEC support to the airborne division. Their mission differs from that of the standard C&J company in that the airborne variant also provides ground surveillance support. They are organized in accordance with TOE 34-267H.

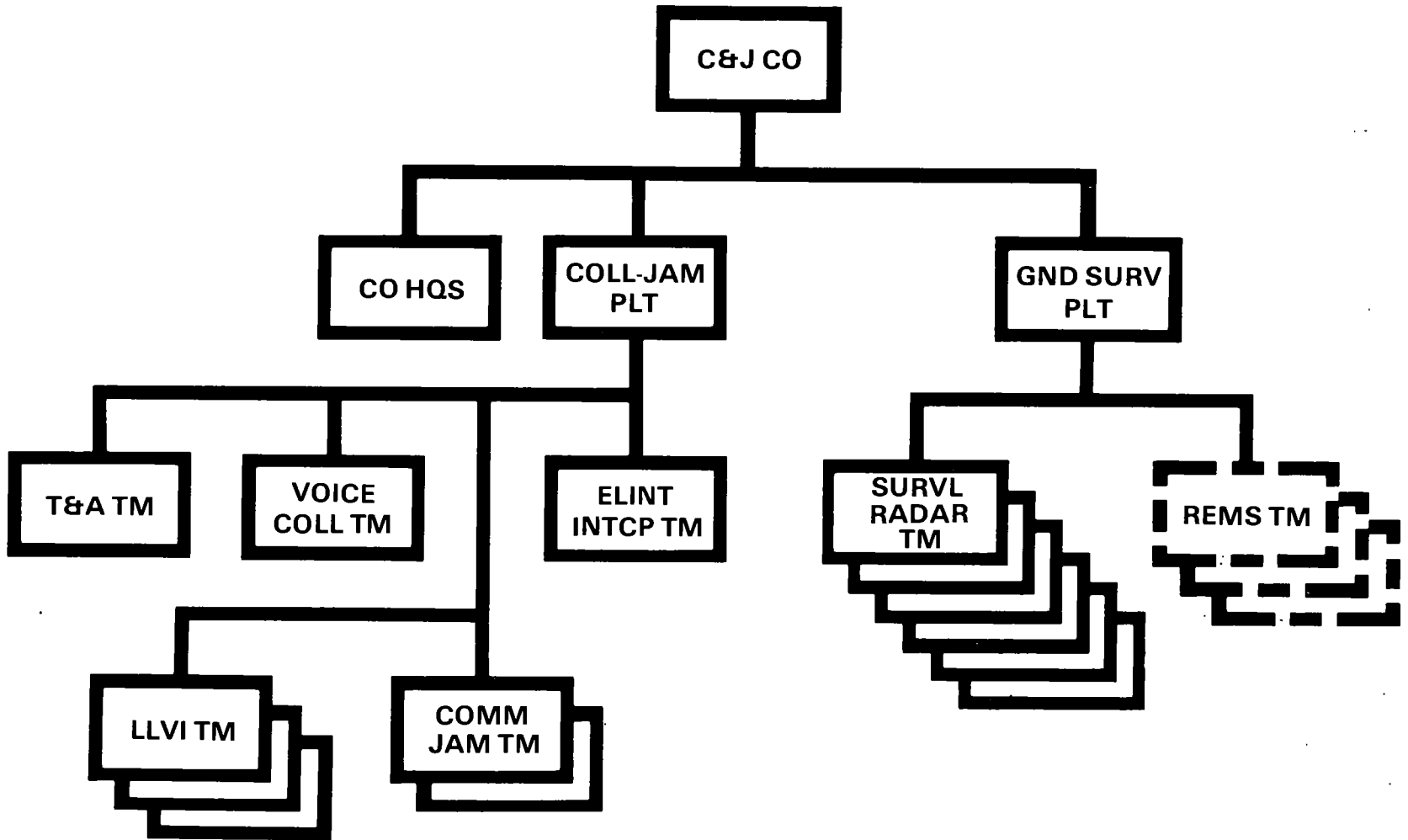
The ground surveillance platoons in the C&J companies provide integrated combat surveillance and target acquisition support to the division. For information on numbers and types of radars in the platoons, refer to the TOE.

The C&J companies may be augmented with remote sensors when the requirement exists and sensors are available.

Air assault infantry can be assigned the same missions as other infantry units. They receive intensive training in airmobile operations and are highly mobile. They are well suited to bypass the enemy's forward defenses and attack his rear. They can delay, conduct wide area surveillance, and form a reserve capable of rapidly exploiting success. See FM 71-101, **Air Assault Division Operations**, and FM 90-4, **Airmobile Operations on the Battlefield**, for a detailed description of airmobile operations.

The MI battalion, organic to the air assault division, provides the same support as found in the AIM divisions.

C&J COMPANY, MI BATTALION (CEWI) (AIRBORNE DIVISION)



GROUND SURVEILLANCE COMPANY

GSR teams include three team members equipped with one AN/PPS-5 radar. Team mobility is tailored by TOE to match that of supported units.

The ground surveillance company provides command control of assigned and attached elements. It is organized in accordance with TOE 34-168H. The company's mission is to provide ground surveillance support to the division.

CAPABILITIES

The ground surveillance company provides:

- ☐ Integrated combat surveillance and target acquisition support to the division.
- ☐ One general support GSR team.
- ☐ Twenty-one ground surveillance radar teams task organized into three platoons for attachment to brigades.

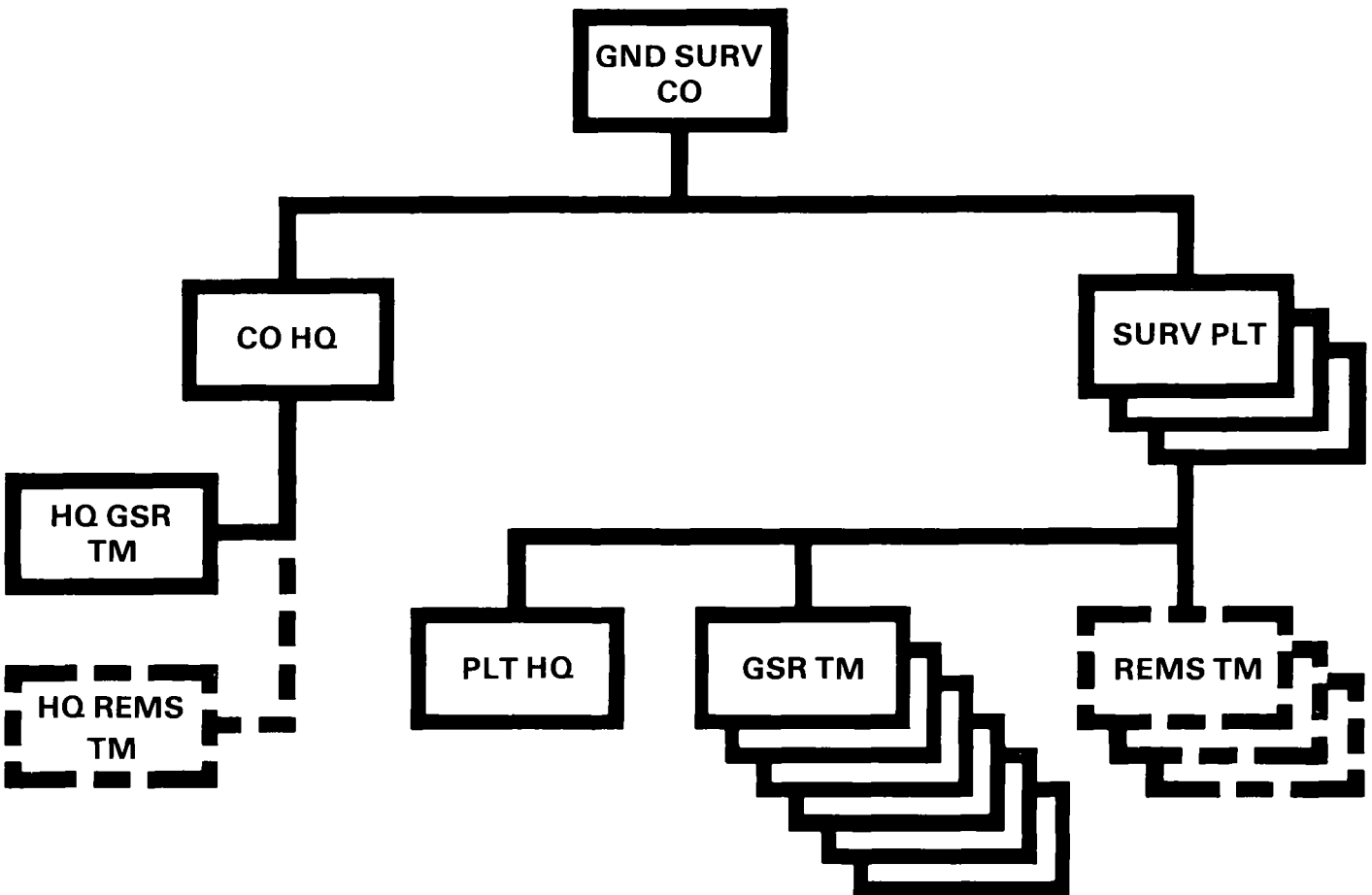
The company may be augmented with REMS when the requirement exists and sensors are available. Augmentation TOE 34-168H811 increases the company's capabilities by providing:

- ☐ One general support remote sensors team.
- ☐ Nine remote sensors teams task organized with the surveillance platoons for attachment to brigades.

Appendix B provides a complete description of remote sensors augmentation, capabilities, and employment.

SURVEILLANCE PLATOONS

Each surveillance platoon is task organized with a platoon headquarters and five to nine GSR teams. The general support team of the company headquarters is assigned to one of the platoons when no general support missions are assigned.



GROUND SURVEILLANCE COMPANY, MI BATTALION (CEWI) (DIVISION)

DEPLOYMENT

MANAGEMENT OF COMPANY ASSETS

Management of ground surveillance radar includes requirements, mission, and asset management.

Requirements Management

Requirements management is the translation of the commander's guidance and concept of operation into intelligence requirements. For GSR, it begins at the battalion task force.

The battalion S2, in coordination with the S3, determines battalion information requirements. He plans how each may be satisfied and determines the number of GSR teams needed. He then submits a request for support to the brigade.

The brigade S2 receives requests from each battalion task force. He coordinates with the S3 and determines brigade requirements. He then consolidates brigade requirements with battalion requests. The brigade S2 insures that all critical requirements are noted and that there is no duplication. Primary areas of concern to the brigade S2 are battalion boundaries and brigade flanks.

The brigade S2 then forwards requests for GSR support to division. Because of time constraints, GSR support usually is requested by message in a format specified by division field standing operating procedures (SOP).

At division, brigade requests are received by the collection management and dissemination (CM&D) section of the DTOC support element. This section identifies division GSR requirements and combines them with brigade requests. The CM&D section insures that there is no duplication and that critical requirements are met. It concentrates on brigade boundaries, division flanks, division rear, and the covering force area.

Mission Management

Mission management is the direction and control of collection operations. It involves iden-

tifying and planning necessary actions for satisfying each identified requirement.

Mission management at division level is performed by the CM&D section. This section prepares the division reconnaissance and surveillance plan incorporating all GSR requirements.

The CM&D section faces some tough decisions. The requirements for GSR support will almost always exceed resources available. It must identify those requirements most critical to the combat force and plan to satisfy them. Decisions are based on brigade assigned priorities and guidance from the G2/G3. Resources are then allocated accordingly.

In some cases, available GSR teams may be allocated to more than one mission. Teams supporting the advance guard or the covering force may revert to brigade control as the brigades enter the battle or the covering force pulls back through brigade lines. Teams used in flank or rear area security roles may be assigned secondary missions and redeployed forward as primary mission requirements diminish.

Once the reconnaissance and surveillance plan is formulated and coordinated with appropriate staff elements, mission tasking is prepared. Mission tasking is directed toward the battalion. It specifies the number of teams to be attached to each brigade, advance guard or covering force, and orders execution of attachment. It usually identifies the specific terms of attachment which are not standard operating procedure. Mission tasking also may direct the use of GSR teams in general support of the division.

Mission tasking may be disseminated as part of the intelligence annex to the operations order. However, fragmentary orders are the normal means of dissemination to the battalion with information copies furnished to brigades.

Asset Management

Asset management is the planning, direction, and control of individual platoons and teams. The battalion operations center receives mission tasking from the CM&D section, evaluates mission requirements, and plans employment of available resources. The battalion commander, through his operations center, task organizes the surveillance platoons in line with

mission tasking. He then directs the ground surveillance company to deploy platoons for attachment.

Asset management requires the battalion operations center to evaluate the following factors for each mission:

- ☐ Tactical situation.
- ☐ Mission requirements.
- ☐ Asset capabilities.
- ☐ Status of available assets.
- ☐ Current and planned missions.
- ☐ Current deployment of assets.
- ☐ Flexibility.
- ☐ Economy of effort.
- ☐ Terrain.
- ☐ Weather.

Discrepancies in mission tasking are coordinated directly with the CM&D section.

Before tasking the ground surveillance company, the battalion operations center plans and coordinates:

- ☐ Primary and alternate routes for platoon deployment.
- ☐ Information/briefings required before deployment.
- ☐ Basic communications data and other information necessary to enter the supported unit's area.

Additionally, the battalion coordinates deployment with the service support company to facilitate support planning.

Tasking messages to the ground surveillance company include all pertinent information resulting from planning and coordination. This information is used by the company to prepare and brief platoons and teams before deployment.

DEPLOYMENT

Deployment is executed by the ground surveillance company upon receipt of tasking from the battalion operations center or at a time designated in the tasking order. The company forms its platoons as task organized by battalion and prepares them for deployment. If the company command post (CP) is to deploy or redeploy, it, too, is prepared for the road march. The company CP normally deploys within 0.5 to 1 kilometer of the battalion operations center.

Company

Operations of the ground surveillance company are decentralized. Surveillance platoons normally are committed by attachment to brigades. The company retains control of teams employed at division, teams awaiting deployment or being refitted, and platoons or teams being redeployed.

Once the platoons and teams are deployed, the commander's responsibility is to personnel and mission-peculiar support. The commander:

- ☐ Assists deployed platoons with mission-peculiar maintenance, supply, and personnel support.
- ☐ Directs and supervises general support teams retained under company control.
- ☐ Regains control of and supervises retrofit of teams suffering heavy battle damage or casualties.
- ☐ Checks deployed platoons and teams to insure maximum operating efficiency.
- ☐ Advises the battalion commander and battalion operations center on all matters pertaining to employment of GSR.
- ☐ Coordinates with the service support company to insure replacement equipment is delivered to deployed teams as soon as it becomes available.
- ☐ Coordinates with the battalion S1 and moves replacement personnel forward to teams suffering casualties.

Platoon

The platoon leader is responsible for moving his platoon to the brigade to which attached. He conducts a road march over specified primary or alternate routes, providing his own march security. Upon reaching the brigade, the platoon leader reports to the brigade S2 and checks in with the IEW support element.

The IEW support element provides interface between the brigade and the MI battalion. It is the primary means through which the platoon leader passes status reports to the MI battalion and the ground surveillance company. Normally, a status report is submitted when the platoon arrives at the brigade CP.

Upon arrival, control passes to the brigade commander. The brigade S2, in coordination with the S3, manages the use of the platoon.

The brigade S2 plans employment of the GSR platoon when preparing the brigade reconnaissance and surveillance plan. He allots GSR teams against requirements based on battalion task force and brigade priorities. Planning is accomplished before arrival of the platoon, based on DTOC notification of teams attached to the brigade.

Teams allotted to a battalion task force usually are further attached to that command by the brigade.

The platoon leader, briefed by the brigade S2/S3, then:

- ☐ Briefs and inspects the teams.
- ☐ Issues instructions to each team for movement to battalion task force CP areas.
- ☐ Issues communications-electronic operating instructions (CEOI) extracts.
- ☐ Dispatches teams and, through the brigade S2, advises battalion task forces of estimated times of arrival.

The platoon headquarters and, when necessary, one or more teams are held under brigade control to support brigade requirements. The S2 plans and controls the operations of these elements. Examples of missions include

security of flanks, CP, and brigade trains. The S2:

- ☐ Determines the mission of each team.
- ☐ Selects general site locations.
- ☐ Determines reporting procedures.
- ☐ Coordinates missions with S3.
- ☐ Briefs the platoon leader on missions.

The platoon leader briefs and deploys teams to general site locations and, with the platoon sergeant, supervises their operations. Generally, the radar teams report collected information directly to the S2 section on the brigade intelligence net.

Besides supervising deployed brigade teams, the platoon leader:

- ☐ Advises the brigade S2 concerning the capabilities, limitations, and employment of platoon assets.
- ☐ Supervises movement of teams in the brigade area when task organization changes are executed.
- ☐ Monitors personnel and equipment status of teams attached to the brigade and battalion task forces.
- ☐ Receives requests for specialized logistics and maintenance support from teams (to include those attached to battalions) and coordinates with the MI mobile support teams or the IEW support element to secure required support.
- ☐ Monitors the operations of teams attached to battalion task forces to insure that maximum support is provided by the teams.

Teams

The teams attached to battalion task forces report to the battalion S2 and are controlled by the battalion commander. Teams may be retained under battalion

control or may be tasked to support a company or platoon.

GSR teams deploy forward and become a part of the supported unit. The battalion task force or supported unit assumes responsibility for team support, security, movement, and integration into planned and ongoing operations.

When control is retained at battalion, the S2 has staff responsibility for their employment. The S2:

- ☐ Plans integration of GSR teams into battalion operations.
- ☐ Determines general site locations.
- ☐ Tasks teams.
- ☐ Briefs teams and provides necessary information for each mission.
- ☐ Insures that teams know the tactical situation, likely areas of enemy activity, and what targets to expect.
- ☐ Coordinates with subordinate companies for team deployment and support.

The team leaders receive instructions from the S2 and move their teams to the general site locations. They:

- ☐ Reconnoiter the general site.
- ☐ Select specific sites to include primary, alternate, and supplementary positions.
- ☐ Coordinate position selection with adjacent companies and platoons.
- ☐ Prepare positions to include fortifications, cover, and concealment.
- ☐ Enter assigned radio nets.
- ☐ Enter the battalion wire communications system when so directed.

- ☐ Forward specific location of radar and area of radar coverage (left and right limits) to the supported element by the fastest, most secure means.
- ☐ Prepare radar surveillance overlays and forward two copies for each position to the battalion S2.

When teams are controlled by companies or platoons, the commander or platoon leader is responsible for deploying and tasking the team. However, enemy situation briefings are provided by the S2 before deployment.

Combat information and other information collected by the teams are reported to the controlling element. Under battalion task force control, teams report directly to the S2 section by telephone or radio. When range precludes direct communication, reports are sent to nearby platoons or companies for relay to the battalion task force.

Under platoon or company control, teams report to the platoon or company CP. When within their capabilities, combat information is acted upon by the platoon or company.

Information reported to the battalion task force may be acted upon, stored for later use, or discarded. The battalion S2 determines information of value to brigade or division and reports it over the brigade intelligence net.

Targeting information may be reported and used as other combat information or entered in field artillery channels. Priority targets are reported directly to the fire support team at company or the fire support element at battalion. This provides the fastest means of getting target data into fire support channels.

REDEPLOYMENT

As the tactical situation changes, redeployment of GSR teams will be necessary. Redeployment may be within the battalion task force, the brigade, or the division.

Redeployment within the battalion task force is directed by the task force commander and supervised by the S2.

Redeployment within the brigade is directed by the brigade commander, supervised by the S2, and executed by the surveillance platoon leader. Redeployment is directed by fragmentary order. The move must be coordinated and controlled, especially when several teams are redeployed. OPSEC must be fully evaluated because of the easily detected GSR signature.

Redeployment within the division starts at the CM&D section. Fragmentary orders are, at the same time, sent to the MI battalion and the affected brigades. The surveillance platoon leader withdraws the affected teams and prepares them for the move. Upon execution, the ground surveillance company assumes control of the teams and coordinates and supervises the move. The brigade gains control upon arrival of the teams.

When possible, teams suffering casualties or battle damage are refitted in place. Otherwise, they are returned to the ground surveillance company to await replacements and new equipment. Redeployment occurs as soon as the team is again operational.

EMPLOYMENT

GSR provides combat information and targeting data through the detection and location of moving targets under conditions unfavorable to other surveillance means. Its primary functions are security and early warning, target acquisition, and limited assistance to friendly force movement control.

Although particularly suited to the battalion task force battle, GSR may be used in any number of roles. It is frequently employed by brigade and division commanders in flank and rear security and usually can be found with covering force elements.

GSR is employed in coordination with other surveillance means. Collected information, other than combat information and targeting data, frequently requires confirmation by other sources. It may require integration with other collected information to make sense or be of value. Finally, GSR limitations must be overcome by other collection sources. For these reasons, GSR is integrated in the total reconnaissance and surveillance plan of the command.

Specific capabilities and limitations for Radar Set AN/PPS-5A are shown below:

CAPABILITIES

- ☐ Detects moving vehicles out to 10,000 meters.
- ☐ Detects moving personnel out to 6,000 meters.
- ☐ Transportable/man- portable.
- ☐ Distinguishes between tracked vehicles, wheeled vehicles, and personnel.
- ☐ Range accuracy to ± 20 meters.
- ☐ Azimuth accuracy to ± 10 mils.
- ☐ Quick setup/takedown.
- ☐ Near-real time reporting.

LIMITATIONS

- ☐ Line-of-sight operation only.
- ☐ Performance degraded by heavy rain, snow dense foliage, and strong winds.
- ☐ Subject to Electronic Countermeasure (ECM)
- ☐ Cannot distinguish enemy from friendly movers.
- ☐ Special maintenance requirements.
- ☐ Active OPSEC risk.
- ☐ Effectiveness reduced by fast moving operations.

NOTE: Units equipped with Radar Sets AN/PPS-4A and AN/PPS-15 should refer to Technical Manuals 11-5840-211-12 and 11-5840-347-13, respectively, for capabilities/limitations.

Capabilities and limitations of ground surveillance radar must be considered in all employment planning. Maximum effectiveness is dependent upon GSR use within the constraints applied by its limitations. Additionally, certain employment factors must be included in planning.

EMPLOYMENT FACTORS

- ☐ Not held in reserve.
- ☐ Integrated into intelligence and operational plans.
- ☐ Deployed well forward.
- ☐ Employed away from troop concentrations, weapons, and communications facilities to minimize risks.
- ☐ Requires local security.
- ☐ Mobility must equal that of supported force.

- ☐ Habitually attached to same unit for training and combat.

As with all other intelligence and electronic warfare resources, GSR is not held in reserve. All available resources are employed to collect maximum information about the enemy; weather, and terrain. However, GSR may be echeloned in depth whenever the tactical situation so dictates.

GSR employment must be integrated thoroughly in all intelligence and operation plans. Integration maximizes GSR capabilities and minimizes its limitations.

To capitalize on the range of GSR, each team is employed as far forward in the battle area as reasonably possible. Factors of team security and survivability and accomplishment of the mission must be thoroughly evaluated in determining how far forward teams are deployed.

Since GSR emissions are detected and identified easily, enemy forces may locate and attempt to destroy the radar. Location close to vital facilities, weapons systems, and troops can

result in damage and casualties beyond that of the GSR team. GSR personnel generally operate from a prepared position with the radar remotod away from the position.

Because of the small size of the GSR team and the relative importance of the GSR, additional local security may be required. Local security is provided by the supported unit by locating the radar where squads or platoons can provide protective fire. Detailing separate security elements is necessary when radar teams are deployed forward of or between widely separated friendly positions.

To fully support any element, GSR teams must be able to move as rapidly over the terrain as the element to which attached. TOE equipment provides this capability.

To reinforce the team's relationship with the supported unit and to insure smooth coordination and cooperation, each GSR team is attached habitually to the same unit in both training and combat. However, equipment sharing is conducted to help defeat enemy radioelectronic combat efforts. Because of the unique signature of each GSR, equipment is exchanged between platoons and teams to frustrate enemy order of battle efforts. Although any one GSR may be detected and identified in one or more locations, it cannot be identified as belonging to any particular maneuver unit. Deception operations may require exchange of GSR equipment between divisions.

Besides the employment factors, the commander or staff officer selecting general site locations must consider site selection factors.

The selection of general sites requires map study of the area of operations. Personal reconnaissance may be carried out when feasible, but generally is not essential. The GSR team leader conducts a full reconnaissance of the general site when selecting specific positions for the radar. He takes into consideration the most critical points in site selection.

Choice of the general site must consider the line-of-sight limitation of GSR. When necessary, terrain profiles are completed to insure line-of-sight to the target area.

Each site selected should have access to routes for lateral, forward, and rearward displacement. Limited mobility reduces the team's responsiveness to the supported unit.

To be of value, information must be reported on time. Sites must permit communications with the controlling element. Where possible, field wire is used between the team and the controlling element. When radio communications are required, line-of-sight must be insured.

Each site should take advantage of security provided by deployed maneuver elements. If such sites are not available, separate security details may be necessary.

GENERAL SITE SELECTION FACTORS

- ☐ Site must permit maximum coverage of the target area.
- ☐ Site should have access to routes for displacement.
- ☐ Site must permit required communications.
- ☐ Site should be situated to take advantage of available security.

CHAPTER 3

OPERATIONS

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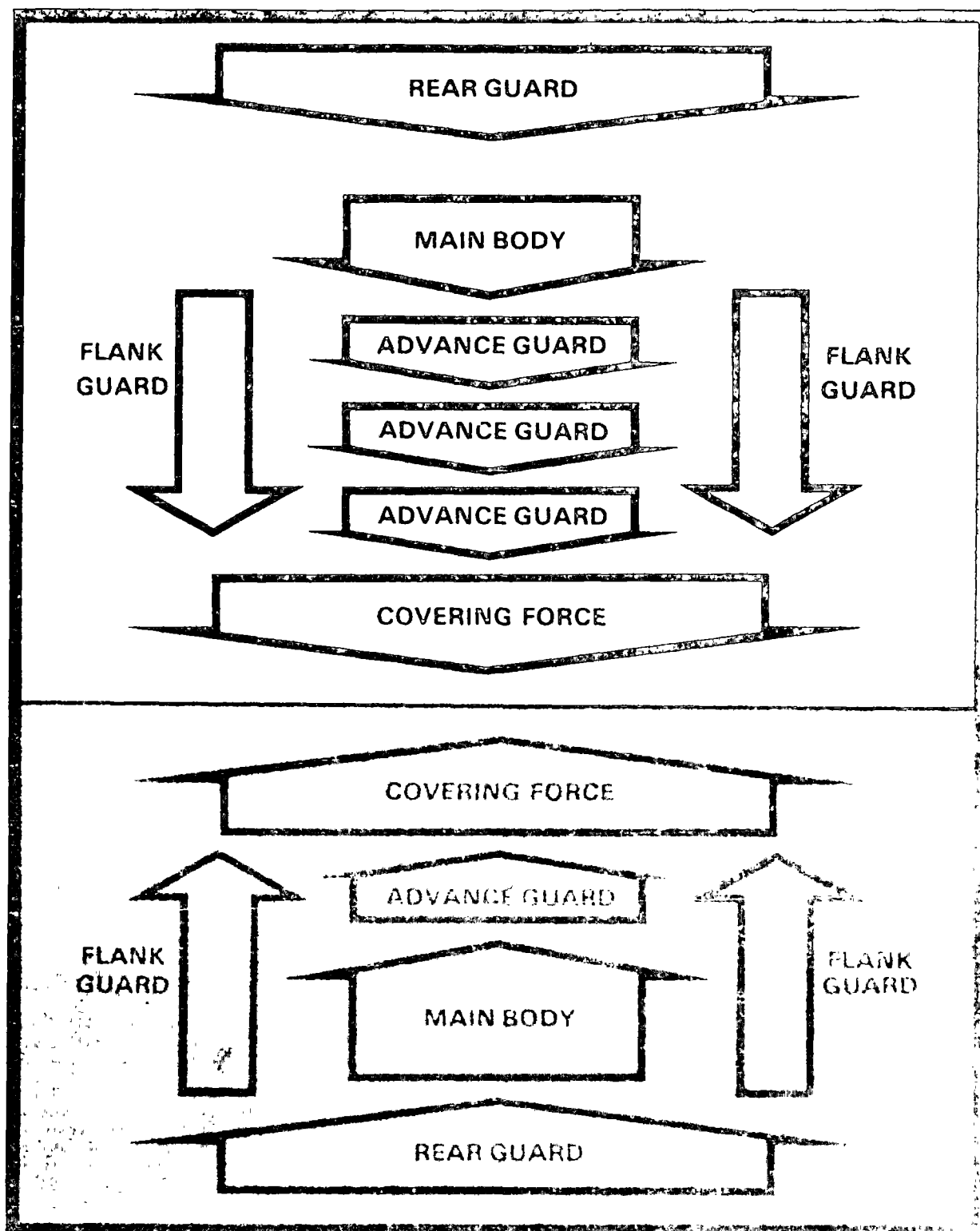
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The most important factors involved in employment of GSR are the tactical situation and the type of operation supported. The following pages describe general employment of GSR in a number of different operations. However, employment should not be limited to those roles identified for each operation. An assessment of the situation may reveal other information requirements that can be satisfied by ground surveillance radar.

MOVEMENT TO CONTACT

The movement to contact is an offensive operation designed to gain or reestablish contact with enemy forces. It is characterized by decentralized control and by quick attacks from the line of march. Commanders must be prepared to act boldly within clear directives to surprise the enemy, to keep him off balance, and to exploit success. All intelligence and security means are used so that the main force is committed under the most favorable conditions. The preferred method of movement is to advance on a broad front using the techniques of the tactical column or approach march. The movement to contact terminates when resistance requires deployment and a coordinated effort by the main force.

In the movement to contact, US forces organize with a covering force and/or advance guard, a main force, and flank and rear security elements. The following illustration shows a typical movement to contact formation.

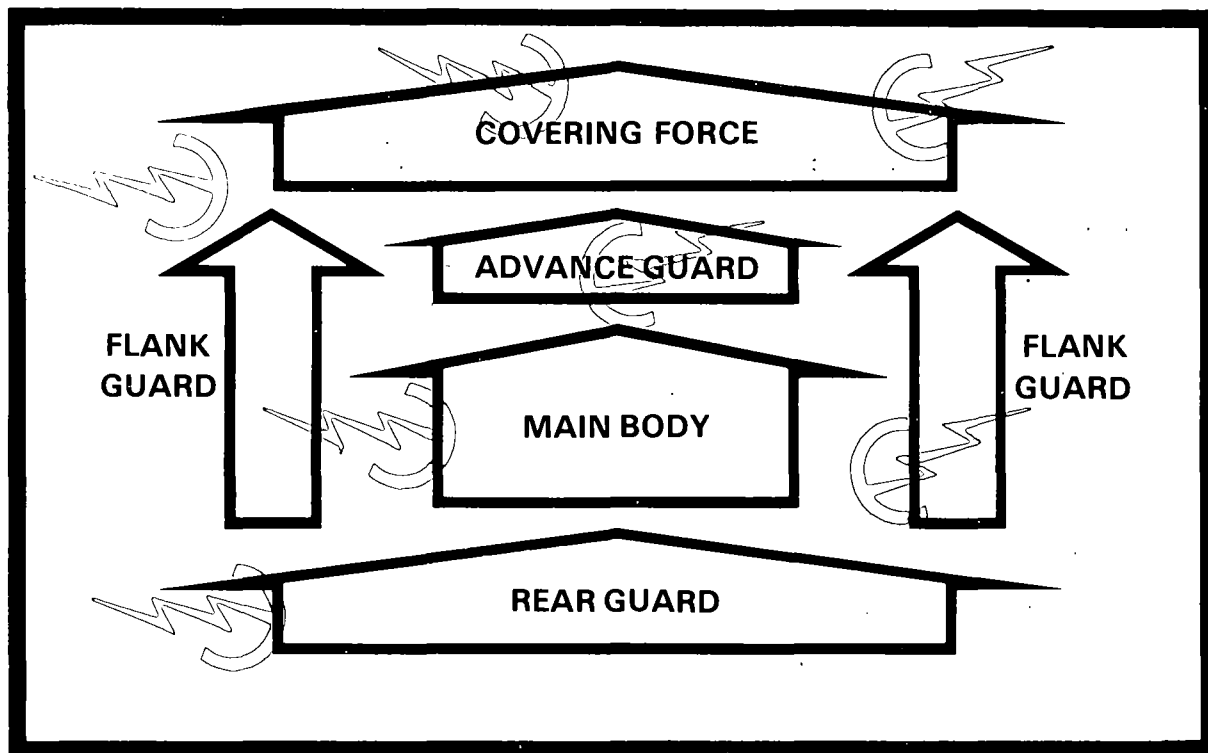


MOVEMENT TO CONTACT

In a division movement to contact, the covering force is composed of a battalion-sized unit of cavalry, armor, or mechanized infantry. It is usually a task-organized element containing tanks, infantry, engineers, and other combat support forces. The covering force mission is to develop the situation and to prevent unnecessary delay of the main force. A highly mobile, well-balanced force is required to attack

and destroy enemy resistance, secure and hold key terrain, and contain forward enemy units.

GSR is used to provide security to the division in the movement to contact. The division allocates and deploys GSR to the covering force and flank security elements and normally allocates a limited number of GSR to brigades in the main force.



TYPICAL GSR ALLOCATION

GSR within the main force deploys and supports committed brigades upon termination of the movement to contact.

GSR teams in flank security roles move with security forces. They employ leap-frog movement to maintain continuous surveillance of critical areas on each flank. One team sets up and begins surveillance while the other team moves forward with flank guard elements. When the first team's efforts are negated by distance, the second team sets up and begins operation. The first then breaks down and moves rapidly forward. This sequence is continued to maintain continuous surveillance of the flank. Depending on teams available and the speed of movement, three or more teams may be employed on each flank using leap-frog movement.

Flank security requires that GSR teams be used to search/monitor likely avenues of approach for attacks against each flank. Intelligence preparation of the battlefield (IPB), conducted before the march begins, identifies all likely avenues. Teams then are directed to concentrate on these areas. If enemy forces attack the flank, GSR provides early warning of the attack and then locates targets for engagement at maximum range. From that point on, in the sequence of events, GSR is used as it would be in the hasty defense as described in later pages.

Normally, six or more GSR teams are employed with the covering force—two with each company team. Company teams move in march column, by bounds or bounding overwatch. GSR teams move with the company teams using leap-

frog movement. They monitor the terrain forward of the covering force to detect enemy activity.

The movement to contact continues until the covering force meets resistance that it cannot overcome. The covering force attempts to maintain forward movement by attacking enemy forces immediately and notifying the main force commander of the action. If the attack fails, the main force commander decides on an alternate course of action.

The main force commander must rely on intelligence in making his decision. He employs all available collection resources to determine the size, capabilities, deployment, and intentions of the enemy force. A key collector is the covering force itself.

The covering force maintains contact with enemy forces and attempts to learn as much about them as possible. GSR is used with other collection resources to determine the size and deployment of the enemy force. Collected information is passed immediately to the main force commander.

The main force commander may elect any of the following courses of action:

- ☐ Reinforce the covering force.
- ☐ Conduct a hasty attack with part or all of the forces available.
- ☐ Establish a hasty defense until additional forces can be brought forward to conduct a hasty or deliberate attack.
- ☐ Establish a deliberate defense to receive a major enemy attack.

Regardless of the decision of the main force commander, GSR teams continue to support the covering force by:

- ☐ Acquiring targets for immediate engagement.
- ☐ Monitoring gaps between units.
- ☐ Providing early warning.
- ☐ Helping to maintain contact with enemy forces.

HASTY ATTACK

It may be difficult to determine when the movement to contact ends and the hasty attack begins. Usually, a hasty attack situation develops when:

- ☐ Movement to contact results in a meeting engagement.
- ☐ A deliberate attack plan is modified after the operation is underway.
- ☐ Further advance is ordered at the end of a deliberate attack.
- ☐ It is necessary to spoil small unit counterattacks.

The hasty attack is characterized by trading preparation time for surprise. To maintain momentum and retain the initiative, minimum time is devoted to planning and the forces used for the attack are those readily available. A hasty attack seeks to take advantage of the enemy's lack of readiness. It involves boldness, surprise, and speed to achieve success before the enemy commander has had time to identify and counter the main thrust. If momentum is lost, a deliberate attack may be necessary.

The hasty attack requires the commander to react quickly. His actions must happen without hesitation—as naturally as breathing. The commander reacts almost instinctively to maintain momentum and to retain the initiative. He maintains contact while protecting his own forces as he seeks to exploit enemy weaknesses.

In the hasty attack, GSR teams continue to support flank security operations to detect an enemy envelopment. Their primary role is early warning of significant enemy activity. The GSR teams continue to provide target acquisition data to fire support and attacking maneuver elements. This capability is especially important during periods of reduced visibility.

Should the hasty attack succeed, GSR teams move forward to support consolidation on objectives. They search the area forward of the force to detect and locate enemy movement which may indicate a counterattack or attempts to break contact. Combat information of this

nature must be reported immediately to the commander to allow maximum time to plan for and execute movement of forces.

If the hasty attack fails or stalls, the force establishes a hasty defense with forces available on the terrain they presently occupy. The hasty defense is adopted to allow the commander sufficient time to select his next course of action.

HASTY DEFENSE

The commander, having considered the tactical situation and force ratios, may elect either the hasty or deliberate defense. Specific reasons for adopting the defense are to:

- ☐ Wear down enemy forces before attacking them.
- ☐ Force the enemy to mass, so that fires can be concentrated against him.
- ☐ Retain or deny terrain, facilities, and activities, or preserve forces essential to the mission.
- ☐ Gain time.
- ☐ Concentrate forces elsewhere.

In both forms of defense the GSR is used to:

- ☐ Monitor choke points and other critical points such as bridges and defiles. These areas are crucial to maintaining the momentum of the enemy attack. GSR can cue artillery and combat engineer units when enemy elements are approaching those critical points. Destruction of enemy armored vehicles in and around these points will seriously slow down the enemy's assault or force him to deploy under unfavorable circumstances.
- ☐ Search likely avenues of approach into defensive areas. The enemy, unable to overcome opposition with his advance guard will attempt an envelopment. Knowing this doctrine, the commander directs GSR teams on his flanks to detect enemy

movement at the maximum range. Early detection of the enveloping force is crucial to insure the commander's proper reaction. GSR is especially critical in this role during darkness and other conditions of reduced visibility.

- ☐ Cue the fire support system when targets enter predetermined kill zones. Attacking enemy forces must be engaged at the maximum effective range of artillery weapons to keep them buttoned up, to slow them down, to cause them to deploy early, and to destroy their thin-skinned fighting vehicles. With proper planning and employment, GSR increases the timeliness and effectiveness of long-range fires.
- ☐ Provide early warning and target acquisition during periods of reduced visibility. Enemy doctrine emphasizes combat at night and during adverse weather conditions. Smoke, from burning vehicles and other material, as well as smoke purposely generated by both the friendly and enemy forces to conceal combat operations, will be extensive on the battlefield. During these periods of reduced visibility, GSR will be an important tool used by the commander to see the battlefield.
- ☐ Provided coverage of areas not observed by other means. Because GSR has a wide area capability, it is an effective economy of force asset. It is able to see into hostile territory where our patrols, outposts, or other elements cannot safely operate.

The hasty defense is normally organized while in contact with the enemy. It is adopted when time is not available for detailed defensive planning and execution, and force ratios or the tactical situation do not favor the offense. During the hasty defense, the force usually takes up positions on the closest defensible terrain making hasty improvements to the natural defensive strength of the terrain. Such improvements include use of foxholes, mines, barbed wire, and

other obstacles to both mounted and dismounted attacks.

The commander may elect to prepare for a deliberate attack or establish a deliberate defense. His decision, dependent upon the tactical situation, terrain, and weather, must be made quickly. If his assessment is that he cannot overcome enemy resistance, he may elect the deliberate defense.

DELIBERATE DEFENSE

The friendly force commander task organizes for the deliberate defense based on his concept of the operation and the tactical situation.

While friendly forces are organizing their defense, the enemy continues to press the attack. If his advance guard cannot overcome resistance before being slowed down, he will attempt to maintain his momentum by deploying his main force.

The main force representing about two-thirds of the combat power of the formation attempts to destroy friendly forces that cannot be quickly overcome by the advance guard. The enemy, within the main force, uses a first and second echelon and a reserve.

The first echelon constitutes about one-half to two-thirds of the main force. It includes tanks and most of the artillery available and is the main attack force.

The second echelon is used to maintain the momentum of the attack, especially along the axis of the main attack. The second echelon is initially tasked to reach the same objectives as the first echelon if assistance is required. The second echelon may be directed to exploit the success of the first, or it may be directed to attack in a new direction. Other missions may be to:

- ☐ Destroy bypassed elements.
- ☐ Defeat counterattacks.
- ☐ Defeat airmobile or airborne attacks.
- ☐ Replace units of the first echelon that have lost combat effectiveness.

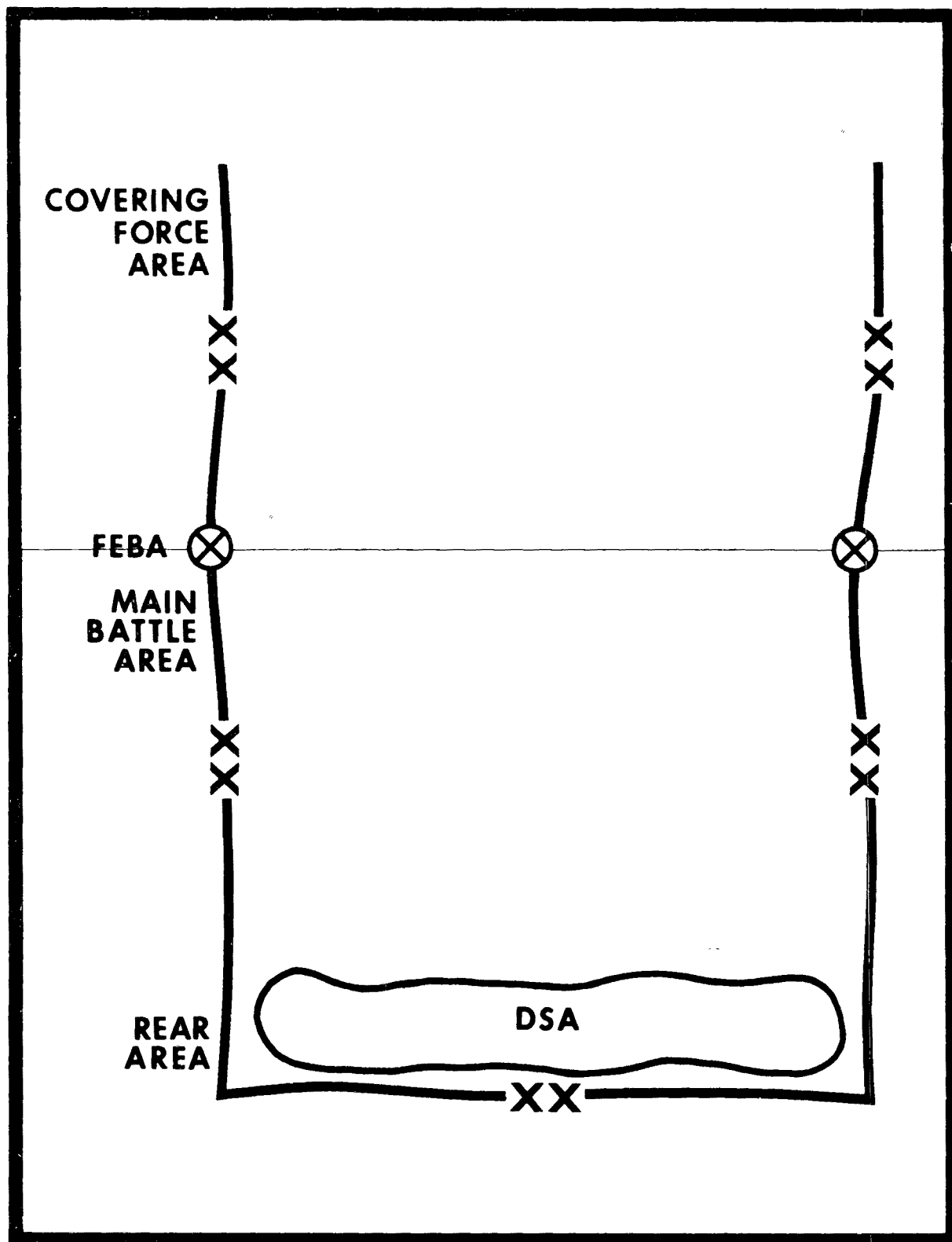
The reserve is normally a small force formed to be ready for unanticipated requirements. They are usually not given specific missions in the attack order.

Enemy forces use the breakthrough to rupture forward defenses to permit the passage of exploitation forces. It is a meticulously planned, deliberate offensive operation carried out against well prepared defenses in which no gaps or exposed flanks can be found. Troops remain mounted and fight from their carriers until forced to dismount.

The breakthrough appears as a telescoping sequence of increasingly larger penetrations as each echelon is brought to bear. The sequence begins with the initial rupture by the first echelon battalions. When the second echelon battalion passes through the gap, the regiment itself then becomes part of the division's breakthrough. As the process continues up through each succeeding level, the width and depth of the breakthrough expands in proportion.

Artillery is essential to the success of the breakthrough. In the conventional version of the breakthrough, concentrated fires last 30 minutes or longer. The objective is to achieve total neutralization of the defending forces in the breakthrough sector.

In organizing the deliberate defense designed to slow or stop the breakthrough, the US force commander establishes a covering force area (CFA), a main battle area (MBA), and a rear area.



DIVISION DEFENSIVE AREA

Covering Force Area

The covering force is a tactically self-contained security force. It operates at a considerable distance to the front, flanks, or rear of a moving or stationary force. Its mission is to maintain contact with the enemy, regain contact if it is broken, and attempt to cause the enemy to deploy his main force prematurely. It will fight with enough force to cause him to reveal the location and direction of movement of his main thrust(s). This must be done sufficiently forward to permit forces in the main battle area to concentrate accordingly. The covering force strips away enemy reconnaissance units, forces him to maneuver to bypass, and defeats his hasty attacks. The covering force presses the fight as far forward of the MBA as possible, until forced to delay toward the MBA. While delaying toward the MBA, the covering force continues to fight, inflicting maximum damage while minimizing its own losses.

The primary mission of GSR supporting the delaying force is targeting. It moves using the leap-frog method, thereby maintaining constant surveillance of enemy forces. The radar teams cue fire support systems and provide targeting data directly to fire support elements.

Another use for GSR is to provide range data to antitank weapons. Through prior planning and coordination, the GSR teams cue antitank weapons as enemy tanks enter their range fans. This insures attack of tanks at the maximum range, but eliminates wasted munitions caused by premature engagement. This tactic is equally effective in the covering force and main battles.

GSR teams supporting the covering force remain in position until the last possible moment and withdraw with forward elements of the force.

When directed to do so, the covering force hands off the battle to MBA forces and moves to a designated area in the MBA. The covering force may be placed under control of one of the brigades or remain under division control. In either case, it prepares for operations in the MBA. GSR teams previously supporting the covering force are redeployed by the division.

Main Battle Area

The decisive battle is fought in the main battle area where friendly forces are concentrated against the enemy's main thrust. As a result of concentrating his forces at selected points, the commander must economize in certain areas. How the commander allocates his combat power is determined through risk analysis and IPB.

GSR is especially useful as an economy of force measure in those areas where forces have been withdrawn to thicken the battle elsewhere. In support of MBA forces, GSR can:

- ☐ Detect patrol activity.
- ☐ Detect movement of forward enemy forces.
- ☐ Provide accurate targeting data to fire support systems.
- ☐ Monitor minefields, barriers, and obstacles.
- ☐ Assist in initiating preplanned fires, final protective fires, and preset demolition charges.

In the MBA, all targeting data is immediately passed to fire support or maneuver elements that can take action against detected targets. Time permitting, and depending on the nature of the information, GSR teams report, through the supported S2, information of value to the division as a whole.

Rear Area

Behind the main battle area is the rear area. It is from here that supply and maintenance support is projected forward. Here, too, are administrative echelons and communication centers. This area must be defended against air attack, airborne and airmobile assaults, and guerrilla operations. However, this mission must be accomplished without using large forces.

Ground surveillance radar is one asset that the commander can use to increase rear area protection. Because of the great size of the rear area, GSR support must be carefully planned and integrated with other rear area protection (RAP) means available to the commander.

Normally, when GSR is used in a RAP role, it is in general support of the division and takes its tasking from the ground surveillance company or other designated elements. The number of teams designated to support the RAP mission will be decided by the division. Missions suitable for GSR in rear area operations include monitoring areas suitable for enemy airborne/airmobile operations. Additionally, they monitor approaches to primary enemy targets such as:

- ☐ Command control communication centers.
- ☐ Special weapons sites.
- ☐ Key logistical complexes.
- ☐ Nuclear delivery sites.

GSR can be used to monitor other areas or points deemed critical.

RETROGRADE

If the main force commander determines that, because of the tactical situation, analysis of force ratios, or terrain considerations, his deliberate defense will not be effective, he may elect to conduct a retrograde.

Retrograde operations are organized movements to the rear or away from enemy forces when:

- ☐ There are insufficient forces to attack or defend, making it necessary to exchange space for time.
- ☐ The command is to be employed elsewhere.
- ☐ Continuation of an operation no longer promises success.
- ☐ The purpose of the ongoing operation has been achieved.

In any retrograde operation, intelligence requirements increase. The commander needs to know **where** the enemy's main strength is, and **where** and **when** he will attempt to mass his combat power to overtake and destroy US units. Conversely, the ability to collect information is decreased because assets have to be pulled off line and leap-frogged rearward to maintain con-

tinuity. Airborne platforms may be forced to increase the standoff distance or to operate in an environment of enemy air superiority. However, the intelligence and operations staffs coordinate to insure that all required support is requested, and that organic CEWI resources are used to their maximum productivity.

Priority of effort is given to detection of enemy attempts to outflank and isolate US elements. Consideration is given to increased use of patrols and stay-behind operations. Side-looking airborne radar (SLAR), infrared (IR), and photo assets are used to provide wide area coverage on the flanks and rear.

There are three specific types of retrograde operations: delay, withdrawal, and retirement.

Delay

An operation in which a unit under pressure **trades space for time** while inflicting maximum punishment on the enemy force without becoming decisively engaged.

The concept of the delay is to fight the enemy with sufficient force so that he has to take the time to concentrate, again and again, trying to overcome the delaying force. The delaying force commander places his teams in battle positions which provide for long-range observation and fields of fire. When time permits, and to gain a mobility advantage, the commander reinforces natural and man-made obstacles, creates new obstacles, and emplaces mines to disrupt the enemy's forward movement.

The enemy, faced with and engaged by the delaying teams, must take time to deploy. Just when he is bringing his full force to bear, the delaying force leaves its defensive positions. The enemy must re-form in approach march to move to the next battle position. When he reaches the delaying force, he must again deploy to overcome the resistance. This time-consuming process is repeated at each succeeding battle position.

Combat operations executed in the delay mission may include attack, defend, ambush, raid, feint, or any others appropriate to mission accomplishment.

Each time attacking enemy forces deploy, ground surveillance radar support begins at the maximum range. During the delay, GSR:

- ☐ Provides early warning.
- ☐ Detects targets of opportunity.
- ☐ Alerts fire support systems when targets enter into preplanned kill zones.
- ☐ Cues combat engineers for the detonation of pre-emplaced demolitions.
- ☐ Increases flank security by being employed with the flank guards.

Withdrawal

An operation in which all or part of the deployed force **disengages from the enemy** at an advantageous time.

The commander may be required to disengage all or part of his forces and relocate to:

- ☐ Concentrate forces.
- ☐ Avoid combat under undesirable conditions.
- ☐ Conform to movements of other US forces.
- ☐ Draw enemy forces into an unfavorable situation.

When under pressure, forward elements normally cover their own disengagement. All available fires are used to stop the enemy and allow elements to fire at, and maneuver away from, enemy forces. The commander disengages his elements in a manner which best preserves the integrity of the force. Sufficient pressure must be kept on enemy forces to prevent disruption of the operation. The US commander must maneuver his units and mass antitank fires to stop or slow the enemy advance before withdrawing.

Timing of disengagement under such conditions is critical. Beginning a withdrawal away from a large, rapidly advancing enemy force **before** its momentum has been slowed could

lead to loss of the entire force. In most cases, breaking loose will occur gradually. During disengagement, deception operations, terrain, and weather should be used to maximum advantage to:

- ☐ Protect friendly command control communications (C³) through the use of terrain masking and Electronic Counter-Countermeasures (ECCM).
- ☐ Cover disengaging units through effective use of weather, terrain, and smoke, and by simulating continued presence of the units until disengagement is complete.
- ☐ Cover routes of withdrawal and routes planned for use by counterattack forces.

GSR supports the withdrawal through deception. Teams remain in place until the last possible moment before withdrawing with the final security elements. This presents the appearance of active forces present in the area. Premature withdrawal of GSR may provide advance warning of the withdrawal.

Other GSR support during the disengagement and withdrawal is essentially the same support as in the delay. However, once withdrawal has begun, GSR use is limited by the speed of the withdrawing force. A high-speed withdrawal may prevent GSR teams from using their normal leap-frog method of movement. Time may preclude the setting up and taking down of GSR.

Once the disengagement is successfully completed, the force rapidly withdraws. Upon detecting the withdrawal, the enemy will begin a high-speed pursuit. Pursuit is highly mobile and conducted on a wide front along parallel routes. It involves both frontal attacks and envelopment to cut off and destroy withdrawing forces. Pursuit operations are made more effective by the use of heliborne and airborne forces. These forces occupy and defend points ahead of the withdrawing force to disorganize and delay the retrograde movement.

Enemy forces consider pursuit an integral part of all offensive actions. It is planned before commencing either advance to contact or breakthrough operations as a natural extension of these operations. Enemy pursuit is designed to complete the destruction of withdrawing

forces. Pursuit ends when the withdrawing force has been destroyed, the lines of communications have been overextended, the pursuing force is threatened with being cut off, or a determined defense is met. When the pursuit is over, units are regrouped and redeployed for the next operation.

Retirement

An operation conducted to **relocate forces from one position to another** without pressure. Retirement presents few opportunities for GSR use; however, it may be required for force movement security.

Both delay and withdrawal contribute significantly to the establishment of the main force's new defense to slow or stop the assault. When the attack is stopped, the entire US force pauses, taking sufficient time to prepare, and then conducts a deliberate attack.

DELIBERATE ATTACK

When the force encounters a well-organized enemy defense in prepared positions, more combat power and time will be required to overcome the defensive system.

The enemy's deliberate defense is organized into successive belts and in echelons to provide depth to the defensive system. A deliberate defense consists of, as a minimum, a security zone and a main defense belt. Additional defense belts may be established if time permits. Each defense belt consists of mutually supporting strong points echeloned in depth. Tank heavy reserves are retained as a counterattack force. Obstacles are constructed forward of and within each belt to impede the advance of and canalize attacking forces into preplanned kill zones.

When a major effort is required, the commander uses all sources available to SEE the battlefield clearly. He focuses efforts to locate lightly held and assailable flanks, a weak point in the defense, or any other exploitable weakness.

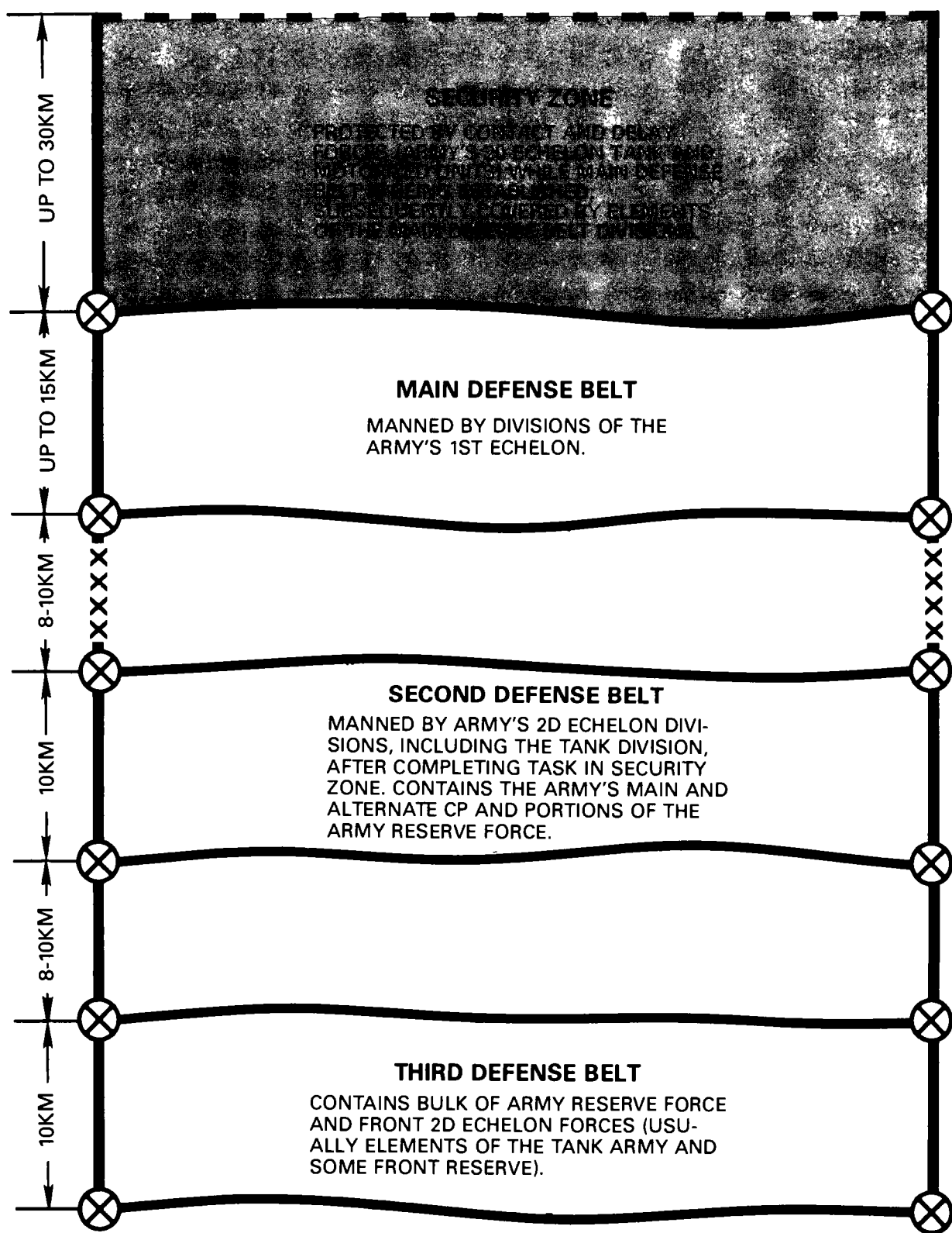
The attack is launched with overwhelming violence, speed, and surprise to shock the defending enemy force. Every effort is made to overrun or bypass strong points that could slow the momentum or inhibit a quick breakthrough.

The enemy is denied an opportunity to concentrate forces. Close air support for the attack is timed to destroy or immobilize forces in the second defensive belt and enemy reserves. US reserves are committed to maintain the momentum of the attack, widen the point of penetration, destroy bypassed forces, thwart counterattacks, and exploit success where the situation permits.

During the deliberate attack, the effectiveness of GSR is limited because of the speed and violence of the attack.

The following GSR support can be provided: flank security, rear area security support, and support to consolidation operations on intermediate and final objectives. GSR continues to provide target acquisition support. When used with other reconnaissance and surveillance assets, GSR assists in determining the forward trace of the enemy security zone.

If the deliberate attack is successful, exploitation and pursuit are initiated.



ENEMY DEFENSIVE BELT CONCEPT

EXPLOITATION AND PURSUIT

Exploitation is an offensive operation which usually follows a successful attack and is designed to disorganize the enemy forces in depth. It is characterized by rapid advance against lessening resistance. Once begun, the exploitation is executed relentlessly to deny the enemy any respite from offensive pressure in the drive to the objective.

Exploitation forces are normally assigned the mission of securing objectives deep in the opponent's rear. The force clears only enough of its zone to permit its advance, while follow-on and support forces normally eliminate bypassed enemy forces and secure lines of communication and key terrain. Follow-on and support forces require mobility equal to that of the exploitation force.

Exploitation continues day and night regardless of weather. Reconnaissance elements, both ground and air, keep the commander informed of enemy action. Only those reserves necessary to insure flexibility of operations, continued momentum of the advance, and minimum security are retained. Actions of the exploitation force are characterized by boldness, prompt use of available firepower, and rapid and unhesitating employment of uncommitted units.

The commander's aim is to reach his objective with maximum strength as rapidly as possible. Control is vital to prevent overextension of the exploitation force.

The pursuit is designed to catch, cut off, and destroy withdrawing forces. It may develop from a successful exploitation of enemy forces which are beginning to disintegrate under relentless pressure. A pursuit may also develop in an operation in which the enemy has lost his ability to operate effectively and attempts to disengage. While a terrain objective may be designated, the destruction of the enemy force is the primary objective.

During the pursuit, direct pressure against the retreating force is maintained relentlessly, while encircling forces sever lines of escape. Maximum use should be made of airborne and air assault elements.

Pursuit operations are conducted aggressively and are characterized by decentralized execution. Commanders should remain well forward to control the operation and take decisive actions. Pursuit is pushed to the utmost limits of endurance of troops and equipment both during daylight and darkness. Continuity of combat service support is vital to the success of this type of operation.

GSR support in exploitation and pursuit operations is similar to its employment in the deliberate attack. It can provide flank security and detect indications of the enemy's attempt to escape. However, because of the speed involved in these operations, GSR support to exploiting or pursuing forces is minimal.

SPECIAL OPERATIONS

Special operations are those in which the natural and man-made characteristics of the area, the nature of the operations, and the unique conditions under which the operations are conducted may require specially trained personnel and special techniques, tactics, or equipment.

The environments that have a strong effect on ground surveillance operations are:

- ☐ Mountains.
- ☐ Jungles.
- ☐ Deserts.
- ☐ Northern operations (winter).
- ☐ Urbanized terrain.

Mountains

Mountainous terrain is usually characterized by:

- ☐ Exaggerated features.
- ☐ Heavy woods or jungle.
- ☐ Rocky crags.
- ☐ Compartmentation.

- ☐ Routes of communication limited in extent and of poor quality.
- ☐ Degraded radio communications.
- ☐ Highly changeable weather conditions.

Mountainous terrain will degrade the target acquisition and early warning capability of ground surveillance radars. Such degradation places increased importance on the proper emplacement of the radar. The radar may have to be manpacked to a position that will maximize surveillance support to the commander.

The optimum operation of radar equipment in mountainous terrain is affected by:

- ☐ Interrupted line-of-sight (defilade).
- ☐ Extreme temperatures.
- ☐ Heavy precipitation.
- ☐ Lack of readily available maintenance support and supply parts.

The mission of the ground surveillance radar teams in mountain operations does not change. They provide the supported commander with near-all-weather, 24-hour surveillance support as previously described.

A more detailed description of mountain operations can be found in FM 90-6, **Mountain Operations**.

Jungles

Jungles are areas located in the humid tropics wherein the land is covered with such dense vegetation that it impedes conventional military operations and obstructs military lines of communications. Dense forests often have the same effects on military operations.

Military operations in jungles are affected primarily by:

- ☐ Climate.
- ☐ Vegetation.

These two factors combine to restrict movement, observation, fields of fire, com-

munications, battlefield surveillance, and target acquisition.

The optimum operation of radar equipment in jungle operations is affected by:

- ☐ Reduced line-of-sight.
- ☐ High humidity.
- ☐ Effects of heavy rain on target acquisition.
- ☐ Extreme heat.
- ☐ Growth of fungi inside the set.

Although radar operation in jungle environments normally is limited, radar is still a valuable asset to the supported commander when properly employed. GSR is particularly useful in preventing surprise when used with other battlefield surveillance devices.

Deserts

Deserts are semiarid and arid regions containing a wide variety of soils in varying relief. There are three types of deserts:

- ☐ Mountain.
- ☐ Rocky plateau.
- ☐ Sandy or dune.

The use of ground surveillance radar in desert operations is critical to the conduct of military operations. The GSR is able to acquire targets at extended ranges and cover considerable distances across the front.

The optimum operation of the radar in desert terrain is affected by:

- ☐ Dust and sand.
- ☐ Temperature variations.
- ☐ Static electricity.
- ☐ Wind.

For GSR operations the chief hazards in desert operations are sand, dust, and high temperatures. Sand and dust get into the leveling

wheels and elevation mechanism and damage them or shorten their useful life. Wind-blown sand can permanently fog the windows, making it necessary to replace them. High temperatures may damage electronic components or make metal components hot enough to cause burns.

To obtain the best performance in target detection, locate the radar set as high as possible above the area under surveillance, so that the radar antenna overlooks the area. On smooth sandy surfaces, the detection range for moving targets may be reduced, because sand presents a surface that does not reflect appreciable amounts of clutter. Increasing the operating angle helps to reduce this deficiency. A second disadvantage caused by the terrain is that little natural cover and concealment are available for radar positions. FM 90-3, **Desert Operations**, provides additional details.

Northern Operations

Northern regions are characterized by extreme cold and deep snow during winter months. Seasonal effects differ between winter, summer, and particularly the transition periods (spring breakup and fall freeze-up). The summer months have long periods of daylight; the winter has long nights. Aside from the climatic effects, military operations also are influenced by the vast distances and isolation common to these areas.

Certain weather phenomena are peculiar to these regions. Whiteouts (a milky atmospheric condition in which the observer appears to be engulfed in a white glow) can cause a loss of depth perception which increases the problems of accurate visual detection of targets. Depending on the severity of the storms, the GSR may be the only asset able to provide target acquisition and early warning to the friendly force.

The successful operation of the radar in northern regions is affected by:

- ☐ Extreme cold causing increased parts breakage or fatigue.
- ☐ Effects of wind and blowing snow on target detection.

- ☐ Freezing of condensation inside the set.
- ☐ Reduced battery life.

Operations in northern regions greatly increase the time required to perform even simple tasks. Experience shows that five times the normal time may be needed. In northern regions the radar set can operate at temperatures as low as minus 25° F. At lower temperatures the radar must be sheltered and kept at a temperature warmer than minus 25° F using space heaters or other means. FM 90-11, **Winter Operations**, when published will contain a detailed description.

Urbanized Terrain

Military operations on urbanized terrain (MOUT) are the reverse of desert operations. Cover and concealment are usually abundant and visibility is greatly reduced. Because of line-of-sight considerations, the target acquisition capability of GSR within built-up areas is reduced. Inaccurate range and azimuth readings may result when the radar beam is ricocheted off buildings.

GSR will normally be used against enemy forces beyond the built-up area. Radar teams are positioned to monitor routes into and out of the built-up area. Inside the built-up area, radars are positioned to detect movement along streets, alleys, and open areas, especially during periods of limited visibility.

When supporting MOUT, GSR will continue to provide the supported commander with information relating to enemy movement, target detection, and combat information. See FM 90-10, **Military Operations on Urbanized Terrain**, for a detailed description.

Ground surveillance radar support under the above special combat environments does not differ significantly from operations under ideal conditions. Special considerations are required for the protection of the radar crew and their equipment to insure their survivability and efficient operation; however, the techniques of operation, reporting procedures, and methods of deployment remain reasonably constant.

CHAPTER 4

COMBAT SERVICE SUPPORT

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This chapter describes the combat service support for a ground surveillance company. It identifies the supporters, suppliers, and feeders of the company and the way they support the company. This chapter is based on the logistical doctrine of fixing and supporting as far forward as possible.

RESPONSIBILITIES

The ground surveillance company commander has responsibility for the service support activities of the company. He supervises the administrative and logistical activities of company elements in the company command post (CP) area and those in general support roles. He insures that company elements deploying forward are supported fully until they reach the maneuver unit. Once company elements reach the maneuver units, the commander monitors their service support status through the IEW support element and the surveillance platoon leaders.

The company supply sergeant is the principal assistant to the commander in matters pertaining to logistical support. He maintains close and continuous coordination with the battalion S4 and appropriate elements of the service support company. He insures continuous supply and maintenance support to company elements in the CP area and in general support.

Surveillance platoon leaders must make frequent visits to deployed teams to insure that adequate service support is received from the supported unit. Service support problems should be resolved by coordination between the platoon leader and the supported unit.

Radar team leaders coordinate with the company or platoon they are supporting for needed service support. If adequate support is not received, they attempt to resolve the problem with the company commander or platoon leader of the supported unit. If a solution cannot be found, the team leader coordinates with the task force S2 or the commander.

FOOD SERVICE

Food service support for company elements that work in the vicinity of the battalion CP is provided by the service support company field kitchen. Ground surveillance platoons/teams attached to brigades and battalion task forces receive food service support from the units to which attached. Company elements in general support receive food service support from the MI battalion or other designated unit.

SUPPLY

The ground surveillance company issues most supplies needed by subordinate elements, with major exceptions being unit rations and bulk petroleum fuels. When elements deploy forward in supported brigade or battalion areas, most supplies will be drawn from other sources. Elements operating in the MI battalion CP area will draw supplies from the company.

Class I (Rations)

The company draws class I supplies from the service support company. The supply section in turn issues class I supplies to elements as the situation requires. Rations issued by the company are limited to combat rations. Elements which remain in the CP area draw class I supplies from company supply. Surveillance platoons/teams attached to brigades and battalion task forces draw a basic load of combat rations and other class I supplies before deploying. Once attached, they draw class I supplies from the unit to which attached. Teams in general support draw class I supplies from company supply or the service support company kitchen facilities. If general support teams are attached to units in the division rear for logistics and maintenance support, class I supplies are drawn from the units to which attached.

Class III (Petroleum, Oils and Lubricants)

Ground surveillance company elements draw class III supplies from refueling points in the areas in which they are operating. Company elements operating in the division rear draw petroleum, oils, and lubricants (POL) from the class III supply point in the division support area (DSA) operated by the main supply platoon of the supply and transport (S&T) battalion. Elements operating in the brigade rear area draw these supplies from the class III supply point in the brigade support area operated by the forward supply element of the S&T battalion. All other elements are dependent upon the unit to which attached. Company supply stocks packaged greases and POL products as required.

Class V (Ammunition)

Class V supplies are drawn from corps support command (COSCOM) operated ammunition supply points (ASP). The COSCOM normally establishes ASP in the corps support area and may establish forward ASP in the division support area. When resupply is required, the company supply sergeant prepares a transportation order based on the unit expenditure reports. The transportation order is validated by a representative of the division ammunition officer (DAO). Ammunition is picked up at the nearest ASP by company vehicles and transported back to the company CP. Elements in the CP area draw ammunition from supply. Supply issues a basic load of ammunition to elements deploying forward. Forward elements coordinate to replenish ammunition supplies through the unit to which attached. Teams in general support (GS) are resupplied by the ground surveillance company.

Class VIII (Medical)

Class VIII supplies are drawn from the MI battalion S4 section. Deployed platoons and teams draw medical supplies from the supported unit or unit of attachment.

Class IX (Repair Parts)

Repair parts stocks are based on the prescribed load list (PLL) and maintained by the company PLL clerk. The PLL maintained

by the company is limited to those items necessary for operator maintenance of company equipment and organizational maintenance of weapons.

Other Classes

Class II, clothing/equipment; class IV, construction; class VII, major end items; type supplies are provided by the battalion S4. These supplies are distributed on demand. Personal demand items (class VI) sold through the COSCOM post exchange (PX) are obtained by submitting a request to the S1 through administrative channels when no PX is available.

MAINTENANCE

The types of equipment organic to the ground surveillance company and its deployment throughout the division area present numerous, complex maintenance requirements. These requirements are met through a combination of maintenance support to include MI battalion maintenance capabilities, support from divisional maintenance units, and support from maneuver units. Primary maintenance requirements are:

- ☐ GSR equipment.
- ☐ C-E equipment.
- ☐ Vehicles and power generators.
- ☐ Weapons.
- ☐ Communications Security (COMSEC) equipment.

Organizational Maintenance

The equipment assigned to the ground surveillance company requires maintenance by the operator. Operator maintenance procedures are provided in operator and organizational maintenance manuals for each type of equipment. A sound policy for the conduct of operator maintenance should be established within the company. Proper operator maintenance reduces downtime and assures that equipment is serviceable.

Organizational maintenance, except weapons, is done by the service support com-

pany. Elements in the CP area normally deliver equipment needing repair to the battalion maintenance facility. Other equipment, such as disabled vehicles, are recovered by the mechanical maintenance platoon. Equipment turned in for repair will be returned to the user as soon as possible. Organizational maintenance of equipment, other than GSR, deployed with GSR teams, will be done by the supported brigades and battalion task forces. Mobile support teams (MST) will provide on-site GSR repair for teams supporting brigades and battalion task forces. Limited organizational maintenance of COMSEC equipment is provided by the C-E maintenance section.

Direct Support (DS) Maintenance

Equipment, such as vehicles and generators, needing direct support maintenance is repaired on-site or evacuated by elements of the forward support company, division maintenance battalion. Direct support maintenance for communications and GSR equipment is provided by the C-E maintenance section of the service support company. Deployed elements receive C-E direct support maintenance from the MST of the C-E maintenance section. On-site repairs will be done when possible; however, if this cannot be done, the equipment is evacuated to the appropriate maintenance shop. COMSEC equipment needing direct support repair must be sent to the division signal battalion.

General Support (GS) Maintenance

General support maintenance is determined through inspection by direct support elements of the forward support company. If general support maintenance is required, the equipment is evacuated to the COSCOM general support maintenance battalion, unless repair can be done onsite by general support maintenance teams. COMSEC equipment requiring general support maintenance is evacuated by the division signal battalion to the COMSEC logistic unit of the echelons above corps (EAC) communications command. Equipment evacuated to a general support maintenance unit cannot be replaced other than by requisition. Requisition of replacement equipment is accomplished by the MI battalion S4.

OTHER COMBAT SERVICE SUPPORT ACTIVITIES

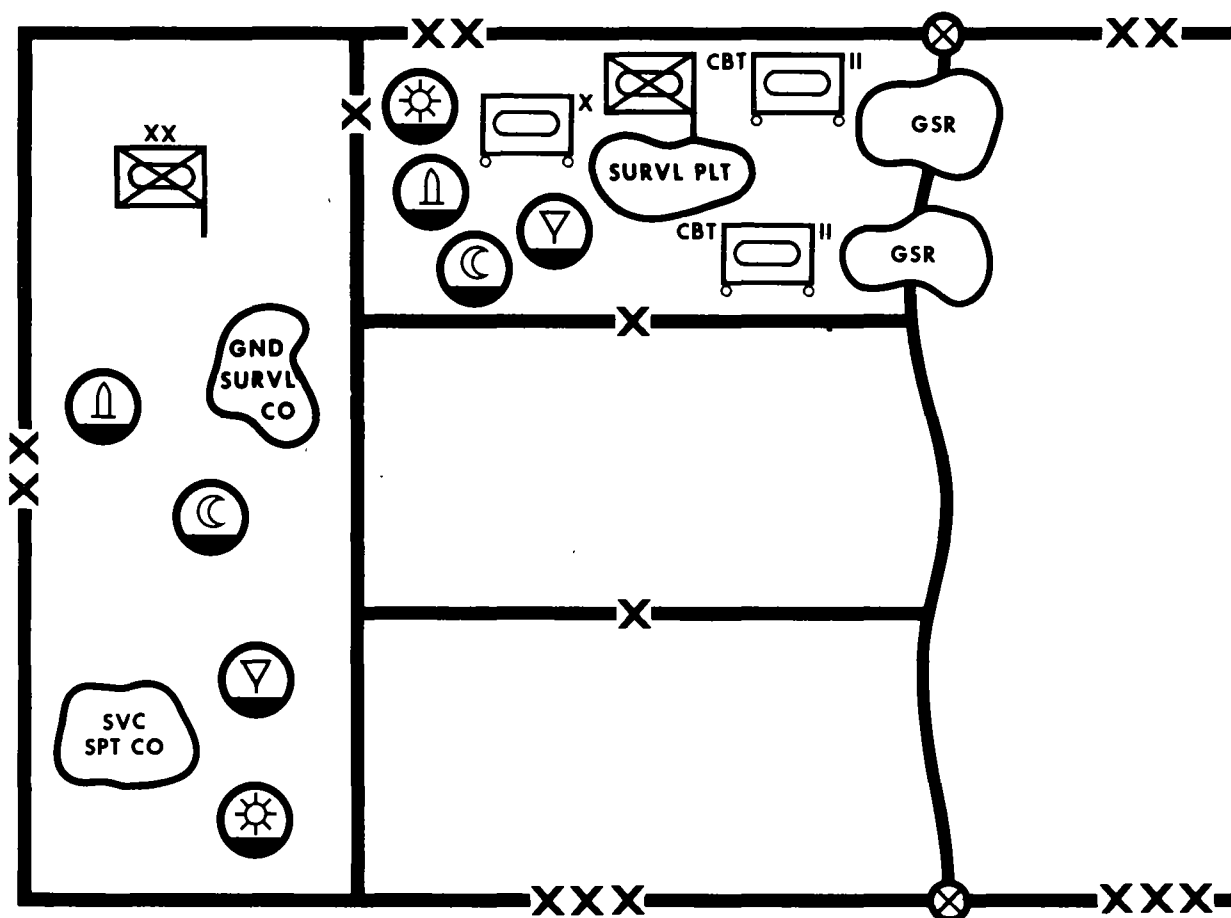
Bath and clothing exchange is coordinated by the company through the MI battalion S4 and is provided by the division S&T battalion. Deployed elements will coordinate these activities through the supported unit.

Laundry service is provided by non-divisional support units and is coordinated in

the same manner as the bath and clothing exchange.

Unclassified maps are acquired through the S2. Deployed elements that require maps for new operational areas coordinate with the unit to which attached.

Medical support for company personnel in the CP area is provided by the nearest division aid station. Deployed personnel are supported by medical aidmen and the medical aid stations of maneuver units.



Type Company Deployment and Sources of Supply

CHAPTER 5

TRAINING

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REQUIREMENTS

Good training results from good leadership. Soldiers are strongly influenced by the example and conduct of their leaders. Leaders must live with their soldiers and share their dangers and privations as well as their accomplishments. Good leaders avoid subjecting soldiers to unnecessary hardships and harassment.

Interest in training can be stimulated by discussions initiated by leaders with their subordinates during breaks in training. Informal discussions increase understanding and add depth to the knowledge of both seniors and subordinates. Troops must be challenged to meet high but attainable standards. Competition promoted between teams or platoons will motivate soldiers to strive for excellence, which then should be properly recognized.

A poorly trained unit is likely to fail at a critical moment, particularly in its first combat engagement. A well-trained unit is reflected in the outward appearance of its soldiers, in the condition of its equipment, and in its readiness for combat. Most of all, it is a reflection of the officers and noncommissioned officers who are its leaders.

When not in combat, the ground surveillance company trains for combat operations. Within the company there is one officer specialty and five enlisted specialties; six when augmented with remote sensor personnel. These skills must be practiced continually, or they will be lost. Training management requires the personal attention of the MI battalion commander and his staff. However, the company commander must insure that training is

realistic and accomplishes the purpose for which intended.

RESOURCES AVAILABLE

Training Literature - Literature supporting training of the ground surveillance company includes field manuals and training circulars applicable to equipment, IEW and OP-SEC functions, and military occupational specialties (MOS). Applicable doctrinal publications of value to training are listed in appendix A. In addition to doctrinal publications, documents providing guidance for both unit and individual training are described briefly in the following paragraphs.

Army Training And Evaluation Program (ARTEP) - The ARTEP is a complete program for unit training. It enables a commander to evaluate his unit to determine weaknesses and deficiencies in training readiness. It then assists him in developing and carrying out a tailored training program to correct the problems noted in the initial evaluation. The ARTEP establishes training objectives and sets forth tasks required of the company, conditions under which the tasks are to be performed, and the standards of performance. It also provides the basis for reevaluating the unit to determine progress. ARTEP 34-168, **Ground Surveillance Company, CEWI Battalion (Division)**, provides a continuous program of collective training designed to prepare and maintain combat proficiency of the company.

Trainer's Guides - Trainer's Guides are published for each enlisted MOS and are the capstone manuals for the MOS to which they apply. They list, for the training manager, all the tasks at each skill level that a soldier must master, the study materials and references applicable to the specific task, and the source and location of training. The Trainer's Guide is an MOS overview which provides invaluable assistance to individual training managers.

Soldier's Manual (SM) - Soldier's Manuals provide training assistance to the individual soldier. They identify the essential skills that each soldier must master to be proficient in his MOS and for career progression. They also assist commanders and supervisors in determining individual training needs and/or

weaknesses and planning training to satisfy those requirements. Commanders and supervisors may then encourage individual study, plan group study, or prepare unit training to correct deficiencies.

Job Books (JB) - Job Books help the first-line supervisor determine a soldier's state of training. Closely related to the Soldier's Manual, the Job Book lists Skill Level 1 and 2 tasks in a specific MOS, along with go no-go and date columns for each task. The Job Book is maintained for each soldier by the first-line supervisor and permits the supervisor to test the soldier and record performance as the opportunity occurs.

Training Extension Courses (TEC) - Training extension courses are individually paced, performance-oriented materials that have been soldier tested. They are available in audiovisual, audio, and printed format. TEC provides a flexible and effective solution to the individual training program in the unit and can be administered to individuals or small groups. TEC is distributed worldwide directly to units and learning centers.

Training Films - Films offer the training manager an opportunity to enhance his training schedule by providing him with high quality, interesting programs on a multitude of subjects. For use in group instruction, a motion picture film will provide an extra dimension to a soldier's training.

Educational Television (ETV) Tapes - Educational television tapes provide validated training programs on skill qualification test (SQT) tasks for use in both individual and group instruction. ETV programs are available in easy-to-use cassettes from the area Training and Audiovisual Support Centers (TASC) in CONUS and the Training Support Activity (TSA) in Europe and Korea.

Army Correspondence Course Program (ACCP) - Army correspondence course program is not necessarily individual training packets. A small group or an entire unit may be enrolled in correspondence courses. Supervised on-the-job training (SOJT) is another option available for some subcourses. SOJT allows a soldier to learn while the unit benefits directly from the work he performs. Soldiers now earn one promotion point for each five credit hours of correspondence courses they complete. In addition, soldiers:

- ☐ Increase chances of success on SQT.
- ☐ Improve skills that aid unit performance during ARTEP.
- ☐ Learn skills that can lead to MOS certification when used through a structured SOJT program.
- ☐ May receive academic credit from civilian institutions for many courses currently offered.

FIELD TRAINING

Realistic - Field training must be realistic, comprehensive, and challenging. The training manager must insure that time and funds are programmed for this training and train to defeat the enemy. Field training should train teams in enemy tactics. Enemy forces can be expected to attack during periods of darkness, fog, and snow. The company must routinely train during periods of limited visibility — train to defend and attack and to operate just as during periods of unlimited visibility. Soldiers must be trained to operate even when fatigued. Field training should be conducted for periods of 3, 4, or 5 days. When this is not possible, fatigue can be introduced into training by conducting 24-hour exercises, starting with a move from garrison to the field training area shortly after 2400 hours.

Habitual Attachment - Surveillance platoons should support and train with the same brigade during all major training exercises. Teams should support and train with battalions/companies in a similar manner. This arrangement should carry over into garrison training and lesser field training exercises. Platoons/teams require detailed knowledge of those units normally supported in combat. A platoon's knowledge and experience are developed over a period of time, and include doctrine, standing operating procedures, and personalities. This facilitates the learning process for both the platoons and the commanders supported. Teams must be prepared to function as isolated elements. Self-reliance and the ability to coordinate with supported units are important skills.

TRAINING REQUIREMENTS

What to Train - Particular areas that should be emphasized in training include, but are not limited to, the following:

- ☐ **Equipment Operation and Maintenance.** Team members should be thoroughly proficient with the operator's controls and indicators, starting procedure, radar self-test, adjustment of gain controls, focus and brightness adjustments, search procedures, target tracking, and radar stopping procedures. Members also must perform proper operator maintenance to insure that the equipment remains in serviceable condition. Preventive maintenance is the responsibility of all personnel concerned with the equipment, but rests primarily with the operator. Preventive maintenance checks and services at the organizational level are made weekly and quarterly, unless otherwise directed by the commander. (See TM 11-5840-298-12.)
- ☐ **Target Identification (Radar and Visual).** Sufficient training time must be dedicated to allow operators to become and remain proficient in target identification. Identification of different sounds produced in the headphones and signals displayed on the scopes should be practiced until readily identifiable. Practice should include such radar returns as those from a person walking, a person running, several persons walking, or a moving wheeled or tracked vehicle. Also, team members may observe, without the aid of radar, enemy antitank weapons, mortars, artillery pieces, missiles, rockets, armored vehicles, and aircraft. They must be able to properly identify and report on these sightings. (See TM 11-5840-298-12.)
- ☐ **Target Plotting and Reporting.** Training in target plotting and

reporting must be continuous. After a site is occupied and the radar is put into operation, radar surveillance cards are prepared for all positions. All team members must be able to prepare these cards. Graphic Training Aid (GTA) 30-1-22, Radar Surveillance Card and Plotter, is used for this purpose and may be obtained from the training aids center. Radar crewman must be trained to report all detected targets using the spot report.

- ☐ Remote Sensors. When the company is augmented with remote sensors, sensor operators also must be provided with training time. Practical work in implanting of sensors; equipment operation, to include target recognition and identification; reporting of targets; and maintenance of equipment must be emphasized.
- ☐ Field Fortifications. Training must include the construction of field fortifications. Proper construction and camouflage of fortifications under combat conditions will be impossible unless practiced during training exercises. FM 5-15, **Field Fortifications**, contains detailed information on the proper way to clear fields of fire and how to build emplacements for crew-served weapons and individual fighting positions. The technique for clearing fields of fire can be used to clear the GSR surveillance area/line of observation.
- ☐ Operations Security. Training time must be set aside to allow operators to become proficient in all aspects of OPSEC. Specific areas to be considered are:
 - ☐ Camouflage and concealment.
 - ☐ Noise and light discipline.
 - ☐ Site selection/remote operation.
 - ☐ Signal security (SIGSEC).

☐ Litter discipline.

☐ Tactical movement.

- ☐ Electronic Warfare (EW) Training in a realistic EW environment is vital. Teams must be prepared for intercept, direction finding, and jamming threats. Actual jamming, using simulators or unit radios, should be used to train radio and radar operators in practical ECCM. For a more detailed discussion, see FM 32-30, **Electronic Warfare, Tactics of Defense**.
- ☐ Infantry Skills. Radar teams cannot rely solely on the supported unit for security. In fact, there may be times when team members will have to use their weapons to help the maneuver unit defend its position. For further details, refer to FM 21-75, **Combat Training of the Individual Soldier**.
- ☐ Nuclear, Biological, and Chemical (NBC) Warfare. Training in all aspects of NBC warfare is of the utmost importance. The enemy's purpose for using NBC weapons is the same as for other weapons: to produce casualties, destroy/disable equipment, deny terrain, and disrupt operations. Training must require that team members be able to continue operations while using NBC protective gear. Although the gear may be burdensome and uncomfortable, it must be used in prolonged training periods to develop resourcefulness and self-confidence. Decontamination and reporting are other areas requiring training emphasis. Enemy use of NBC weapons will require emergency, near-automatic decontamination of individuals, vehicles, and equipment. Reporting of suspected enemy use of NBC must be timely and accurate. Teams must be trained to report observations of unusual or unexplained incidents that could be NBC related. For a detailed description of NBC defensive measures, see FM 21-40,

Nuclear, Biological and Chemical Defense, and TM 3-220, Chemical, Biological, and Radiological (CBR) Decontamination.

the deficiencies. Continual evaluation and training will enable the company to attain a high level of combat proficiency.

- ☐ Communication Procedures/Operations. Training in communication procedures should be in strict compliance with established practices and the unit's CEOI. Emphasis must be placed on:
 - ☐ Use of call signs
 - ☐ Changing frequencies.
 - ☐ Use of low power.
 - ☐ Encoding/decoding procedures.
 - ☐ Masking radio antennas.
 - ☐ Short transmissions.
 - ☐ Radio silence.
 - ☐ Authentication procedures.
 - ☐ ECCM procedures.
 - ☐ Use of alternate means (wire and messenger).

For a detailed description, see FM 24-1 (HTF), **Combat Communications.**

- ☐ Night Operations, Movement and Maneuver. As stated earlier, training must be conducted during periods of reduced visibility with emphasis on night observation. GSR teams must be trained in:
 - ☐ Occupying and evacuating positions.
 - ☐ Night navigation.
 - ☐ Road and cross-country movement.
 - ☐ Operating under black-out conditions.

As other problem areas are identified, training emphasis should be shifted to eliminate

APPENDIX A

REFERENCES

ARMY REGULATIONS

- 310-25----- Dictionary of US Army Terms
310-50----- Authorized Abbreviations and
Brevity Codes

FIELD MANUALS

- 5-15----- Field Fortifications
5-100(HTF)----- Engineer Combat Operations
(How to Fight)
6-20(HTF)----- Fire Support in Combined
Arms Operations (How to
Fight)
6-121 ----- Field Artillery Target
Acquisition
11-50(HTF)----- Combat Communications
Within the Division
(How to Fight)
21-40 ----- NBC (Nuclear, Biological, and
Chemical) Defense
21-75 ----- Combat Training of the
Individual Soldier
24-1(HTF) ----- Combat Communications
(How to Fight)
30-102----- Opposing Forces Europe
31-85 ----- Rear Area Protection (RAP)
Operations
31-100(Test)----- Surveillance, Target
Acquisition and Night
Observation (STANO)
Operations
32-30 ----- Electronic Warfare, Tactics
of Defense
*34-1(HTF) ----- Intelligence and Electronic
Warfare Operations
(How to Fight)
34-10(HTF)----- Military Intelligence
Battalion (CEWI) (Division)
(How to Fight)

*To Be Published

- *34-12 ----- Collection and Jamming
Company, MI Battalion
(CEWI) (Division)
71-2(HTF) ----- The Tank and Mechanized
Infantry Battalion Task Force
(How to Fight)
71-100(HTF) ----- Armored and Mechanized
Division Operations
(How to Fight)
90-3(HTF) ----- Desert Operations
(How to Fight)
90-6----- Mountain Operations
90-10(HTF)----- Military Operations on
Urbanized Terrain (MOUT)
(How to Fight)
* 90-11 ----- Winter Operations
(How to Fight)
100-5(HTF)----- Operations (How to Fight)
101-5-1(HTF) ----- Operational Terms
and Graphics (How to Fight)

TRAINING CIRCULARS

- 11-4----- Handbook for AN/VRC-12
Series of Radio Sets
34-50 ----- Reconnaissance Surveillance
Handbook

TECHNICAL MANUALS

- 3-220 ----- Chemical, Biological, and
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Decontamination
11-5840-211-12--- Radar Set AN/PPS-4A
11-5840-298-12--- Radar Sets AN/PPS-5,
AN/PPS-5A
11-5840-347-13--- Radar Set AN/PPS-15A

ARMY TRAINING AND EVALUATION PROGRAM

34-168 ----- Ground Surveillance Company,
CEWI Battalion (Division)

COMMANDER'S MANUALS (TRAINER'S GUIDES)

See DA Pamphlet 310-3

SOLDIER'S MANUALS

See DA Pamphlet 310-3

TABLE OF ORGANIZATION AND EQUIPMENT

34-165H ----- Combat Electronic Warfare
Intelligence Battalion
(Division)

34-168H ----- Ground Surveillance
Company, CEWI Battalion
(Division)

MISCELLANEOUS

*ATP-35 Land Force Tactical Doctrine (STANAG 2868)

*Used only as reference, and is available from: Naval Publications and Forms Center,
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documents)

APPENDIX B

REMOTE SENSORS

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Properly used remote sensors (REMS) constitute an additional information source for the ground commander. REMS are used to complement and supplement other sources. When integrated into the overall surveillance plan, they increase the efficiency of the combat surveillance effort in the area of operations. REMS provide information for the production of intelligence and timely, accurate target acquisition data. REMS have a near all-weather day/night capability. Additionally, the effective employment of REMS with other surveillance assets is an economy of force measure.

Sensor employment is planned by the type, number, location, and layout of the sensors on the ground. The ground layout is called a **sensor string or field**. A sensor string is two or more sensors employed to monitor a specific area where enemy activity is suspected. A field consists of two or more strings employed to monitor two or more specific locations within an area.

TYPES OF SENSORS

REMS are categorized according to the means of detection and method used to emplace the sensor. The detection means include:

Seismic

Seismic sensor operation is based on detecting vibrations transmitted through the ground caused by any activity ranging from rainfall to earthquakes. Military surveillance primarily concerns detection of vibrations caused by personnel and vehicles in an unobserved area. Seismic sensors normally can detect personnel movement up to 30 meters and vehicle movement up to 300 meters from the sensing element. Soil composition, terrain pro-

file, and individual sensor capabilities may limit or extend the detection radius.

Acoustic

Acoustic sensors work on the principle of the microphone and have detection capabilities and ranges similar to those of the human ear. Detractors to human hearing will also detract from the acoustic sensor's performance. Acoustic sensors are used with seismic sensors as confirming sensors. They are activated only after receiving a number of seismic activations within a specified time frame. After activation, the acoustic sensor will transmit for as long as 15 seconds, during which time no seismic information can be transmitted. Therefore, it is highly desirable to assign a different frequency to acoustic sensors if sufficient frequencies are available.

Magnetic

Magnetic sensors operate by detecting moving ferrous metal within their detection range. Current magnetic sensors have a range of approximately 4 meters for personnel and 25 meters for vehicles. Used in conjunction with seismic sensors, magnetic sensors are used to confirm information derived from seismic activations.

Electromagnetic

Electromagnetic intrusion detectors set up an electromagnetic field and adjust to the background (terrain and weather) in which they are implanted. Movement of objects within the field is detected by the sensor, causing it to transmit an activation signal. The electromagnetic intrusion detector is used in marshy areas, waterways, depressions, and gullies where seismic sensors would be ineffective. Its primary function is to detect moving targets that disturb the radio frequency (RF) field. Since any movement affects the field, foliage moved by the wind also will cause indications of targets. Therefore, this type of sensor should always be employed with other types of sensors for confirmation.

EMPLACEMENT

- ☐ **Hand Emplacement.** Sensors may be hand-emplaced by maneuver unit patrols, by long-range reconnaissance patrols, by long-range

surveillance operations, or by REMS teams. The major advantages of hand emplacement include accurate determination of sensor location, better camouflage, and confirmed detection radius of each sensor. Disadvantages include threat to the implant team, time factor required to install several strings, and the limited number of sensors that can be carried by the implant team.

- ☐ **Air Delivery.** Primarily accomplished by helicopter, this method provides an accurate and quick response to the ground commander's request for support. Air delivery provides access to areas inaccessible to ground elements, speeds emplacement, and increases the number of sensors that can be emplaced during a single mission. Army air asset capabilities are limited by enemy air defense measures, the inability to accurately determine sensor detection radius, and adverse weather conditions. Although not currently used in this role, high-performance aircraft and Army fixed-wing aircraft also may perform sensor implant operations.

MANAGEMENT AND DEPLOYMENT

Management and deployment of remote sensors is similar to that of ground surveillance radar as explained in chapter 2. Only minor differences must be considered.

REMS are not as flexible as GSR. Once employed, they normally are not accessible for recovery. Shifting requirements mean that additional sensors must be issued to the teams before new missions can be assigned. Sensors **may be** recovered during offensive operations as friendly forces advance; however, additional sensors usually are required for employment ahead of attacking forces.

Coordination is required whenever monitor responsibility for employed sensors

shifts from one unit to another. Coordination between teams and platoons of the same division is informal. Coordination between divisions or corps is made more formal and detailed by the transfer of sensor operator data records and sketch maps to gaining units.

Finally, frequency management must be thoroughly coordinated with the C-E staff at each level. Frequency management and coordination reduce interference between sensor strings and between sensors and other C-E systems.

Employment

REMS may be effectively employed for many operational tasks, alone, or with other surveillance assets. The planning and coordination for the use of the REMS depend on a complete evaluation of the mission and a determination of support needed. REMS employment is planned by the type, number, location, and layout of sensors on the ground. Hand emplacement has the tactical limitation of access to the area. Air emplacement reduces this tactical limitation, but emplacement accuracy is degraded. Enemy air defense, enemy air force, and weather conditions also may be limiting factors in air emplacement.

The location of sensor strings will be determined by REMS personnel and the supported unit's S2. During fast, violent operations in combat, REMS will be used most effectively in the defense and the delay and in rear area and flank security roles. The tactical situation will determine what will or will not be effective.

Offensive

Offensive operations, including exploitation and pursuit, will present only limited opportunities for the employment of REMS. This will be a result of the speed of combat operations. By the time sensors are emplaced and data start entering the intelligence system, the level of violent activity in the battle area may be so great as to saturate the sensors beyond value. If the attack is successful and the enemy is forced to withdraw, friendly forces may overtake and negate locally emplaced sensors. REMS may be effectively used when emplaced deep in the enemy's rear area to provide indications of reinforcement or withdrawal.

Flanks

When placed on lightly defended flanks of maneuver elements, REMS will provide early warning of enemy attempts to conduct envelopments. Sensors used in this role will permit economy of force by reducing the number of troops needed to protect a unit's flank during any type of operation.

Rear Area Security

REMS will play a major role in rear-area security operations. They may be emplaced for counter guerrilla operations and to provide timely warning of enemy vertical envelopment. Placed in likely landing and drop zones, sensors will permit rapid identification of enemy air-mobile or airborne assault locations. This applies to small and large insertions of troops behind friendly lines. REMS will also be extensively used to secure combat service support elements.

Defensive

REMS may be effectively used in defensive operations as an early warning system to provide indications of enemy movement and location. The amount of activity detected by each sensor string or field may provide indications of main or supporting attacks, feints, or diversions. Since activity will be at its peak on the battlefield, REMS may be saturated with indicators and may not be able to provide anything other than warnings of imminent attack. Other than this disadvantage, defensive uses may include any or all of the following:

- ☐ Targeting.
- ☐ Detection of enemy patrol activity.
- ☐ Detection of enemy infiltration.
- ☐ Identification of enemy primary lines of communication (when deep in enemy territory).

While in a static defensive posture, REMS will also provide detailed target acquisition data. This data will be sufficient for immediate engagement of targets using air, artillery, or direct fire weapons. Once the battle has been joined, only those sensors emplaced in relatively

inactive areas will be of value to the commander. In this case, flank and rear area security roles will prove to be the most effective and valuable use of REMS.

Retrograde

During retrograde or delay operations, REMS may provide an element of security to units conducting the delaying action. REMS can be emplaced and left in a stay-behind role to provide warnings of when and where enemy forces are moving. Units conducting retrograde may be able to use REMS for flank and rear security. Once the forward echelon of attacking enemy forces has progressed beyond the stay-behind sensors, the sensors will prove valuable by providing indications of resupply or reinforcement activities of enemy rear echelon units. Careful planning must be made during retrograde or delay to locate and install sensor relay equipment. These relays will require camouflage and remote emplacement to avoid detection by enemy forces.

Special Operations

Military operations on urbanized terrain (MOUT). The employment of REMS in built-up areas is not ideal. Should operations be conducted in concrete or asphalt areas, traffic will cause constant, nontargetable activation. Line-of-sight may be significantly impaired, and key terrain may not be accessible. For details, see FM 90-10, **Military Operations on Urbanized Terrain**.

Mountain. As with MOUT, mountainous terrain will cause a definite impairment of line-of-sight and accurate activation readings from sensors. Additionally, environmental activation produced by natural sources, such as wind, rain, and animals, will be extensive. REMS teams depend on relays in mountainous areas. For details, see FM 90-6, **Mountain Operations**.

Northern. In northern climates, REMS will be greatly affected by extreme temperatures. The stresses induced by sudden extreme changes may impose severe structural strains on the equipment and may damage or shorten their useful life. Extreme cold will also shorten battery life. For details, see FM 90-11, **Winter Operations**.

Jungle. The combination of intense heat, high humidity, heavy rainfall, and the rapid growth of fungi in jungle or tropical areas creates operating problems not encountered in temperate climates. For example, if left in direct sunlight, the sensors may become hot enough to cause damage to internal components. The high humidity hastens corrosion. Fungus growth may interfere with mechanical functioning. Condensation may cause internal corrosion.

Desert. The primary hazards in desert operations are sand, dust, and heat. Sand and dust can get into monitoring equipment causing internal damage, thereby increasing maintenance requirements. Loose sand will reduce the effective detection radius of seismic sensors. Extreme heat will also shorten battery life. For details, see FM 90-3, **Desert Operations**.

REMS AND ELECTRONIC WARFARE (EW)

REMS are susceptible to enemy radioelectronic combat. Sensor relays, monitoring devices, and electromagnetic sensors are subject to jamming by high-power RF signals transmitted in a broadband encompassing the frequencies used by REMS. Jamming may electronically mask the reception and identification of information transmitted by the sensors and cover the movement of enemy forces through areas guarded by REMS.

The effects of jamming may be decreased by using terrain to mask the receiving antenna from suspected or known jamming locations. However, line-of-sight must be maintained between the monitor and the sensor. If relays are used, they should also be masked from jamming if possible. A second method to reduce jamming effects is to use a directional antenna at the monitoring site in conjunction with terrain masking. A directional antenna is most sensitive in the direction in which it is used and tends to reduce or weaken signals from all other directions. (See FM 24-1 (HTF), **Combat Communications**.) The best method for neutralizing the effects of jamming is to neutralize the source through indirect fire. All enemy attempts to jam friendly equipment must be reported immediately. EW personnel may be able to locate and direct fire against the jammer.

The enemy may be able to locate and later neutralize sensor fields by intercepting transmissions from the sensors. Intercept is more likely when acoustic sensors are used, as the transmission time may be as long as 15 seconds. However, the probability of enemy intercept is negligible.

How much EW effort the enemy will direct toward REMS is not fully known. Their estimate of REMS effectiveness will determine countermeasures used against them.

APPENDIX C

COMMUNICATIONS

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COMMUNICATIONS REQUIREMENTS

Communications in the ground surveillance company are both necessary and critical to support the tasking and dissemination function of the company.

Every aspect of the company's operations is dependent on immediate, dependable, and secure communications. Unless the teams can be tasked, they can do nothing for the supported commander. They must be tasked to collect information in a specific target area, at a certain time, and in response to specific requirements. The company is totally dependent on secure, reliable, and timely communications for rapid dissemination of combat information and intelligence.

COMMUNICATIONS PRINCIPLES

The transmission of information to supported commanders and other users is essential to ground surveillance effectiveness. The flow of this information to its intended recipients drives the establishment of ground surveillance communications. The following paragraphs describe the types and flow of information to and from the ground surveillance company, teams, supported commanders, and the MI battalion.

Command Control Information

The ground surveillance company is an initiator and recipient of command control

information. Command control information flows from the MI battalion to the ground surveillance company to ground surveillance radar teams. Before and during deployment, each team is able to receive and respond to the commander on operational or administrative matters. Once deployed, the teams respond to the supported commanders.

Tasking Information

There are two forms of tasking: mission tasking and asset tasking. Mission tasking is generated by the CM&D section and directs the MI battalion to task organize or to accomplish missions in support of command requirements. Asset tasking is generated by the MI battalion operations center and by the brigade S2/S3 for surveillance assets attached to the brigades and retained under their control. Asset tasking differs from mission tasking in the amount of detail provided.

Mission tasking flows from the CM&D section to the MI battalion operations center where necessary detail is added. Mission tasking then becomes asset tasking which directs specific assets or organizations to execute actions. Asset tasking flows from the MI battalion operations center to the surveillance platoons. The teams attached to brigades and retained under control of the brigades receive asset tasking from the brigade S2/S3. Teams further attached to battalion task forces receive all tasking from the battalion S2/S3.

Administrative and Logistics Information

Information in this category addresses the functions of people, equipment, maintenance, and supply. This information flows from the battalion CP and the battalion S1/S4 to the ground surveillance company and its elements.

Combat Information and Intelligence

Combat information and intelligence are critical to the conduct of combat operations. They constitute products upon which commanders base decisions for fire and maneuver. All elements require combat information and/or intelligence to effectively contribute to the combat power of the division. Combat information and intelligence flow to and from all elements in the

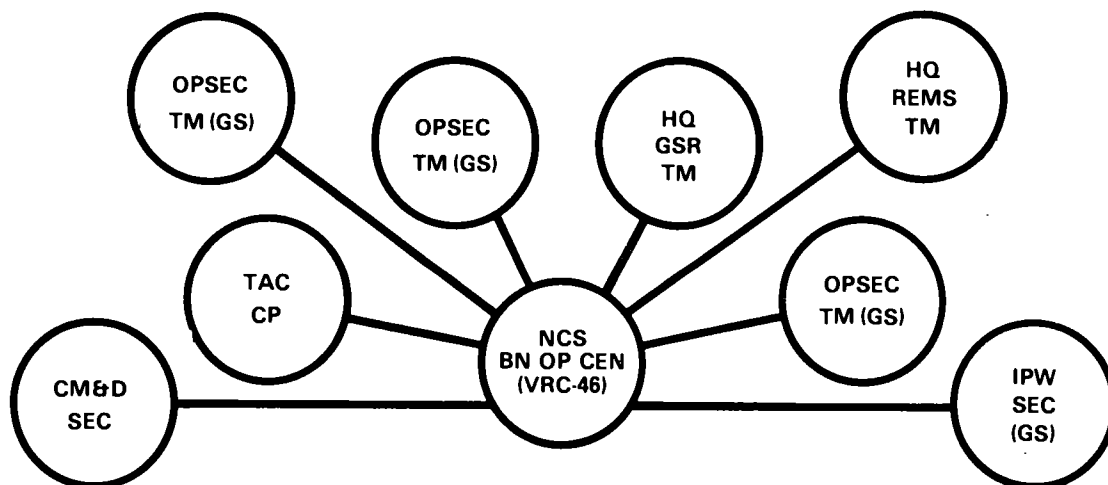
ground surveillance company and to each user. Targeting information flows directly from the collector to fire support elements at all levels. The flow of this information is essential to the progress of combat operations.

Deployed elements report combat information directly to the supported commander for use in fire and maneuver. Combat information also is entered in intelligence channels for inclusion in the all-source processing effort.

The remainder of this appendix depicts communications nets necessary for the effective operation of the ground surveillance company.

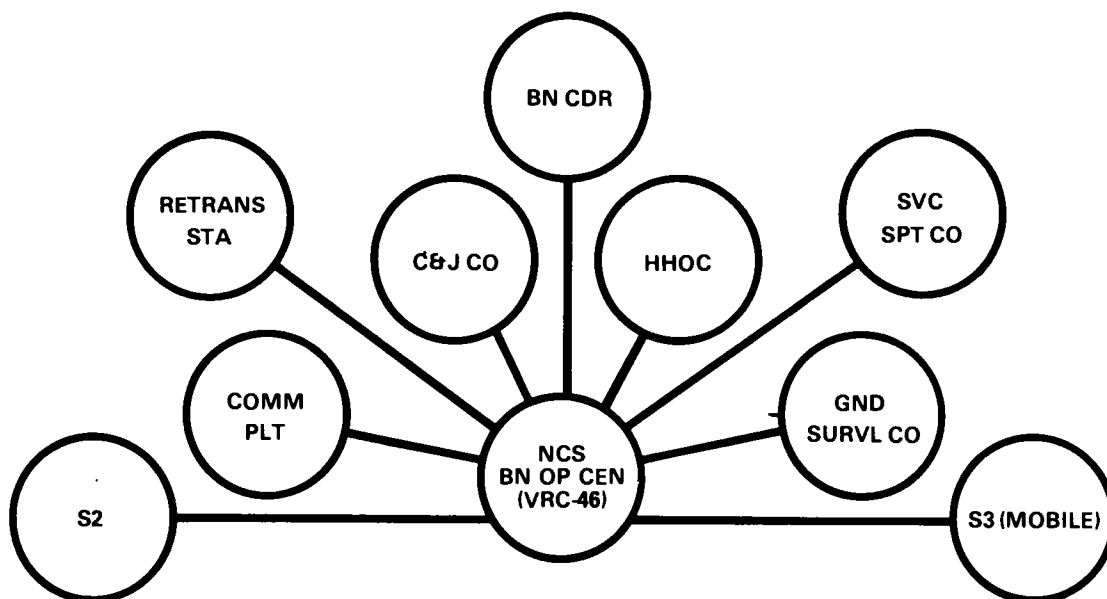
COMMUNICATIONS DIAGRAMS

MI BATTALION TASKING AND REPORTING NET (FM).



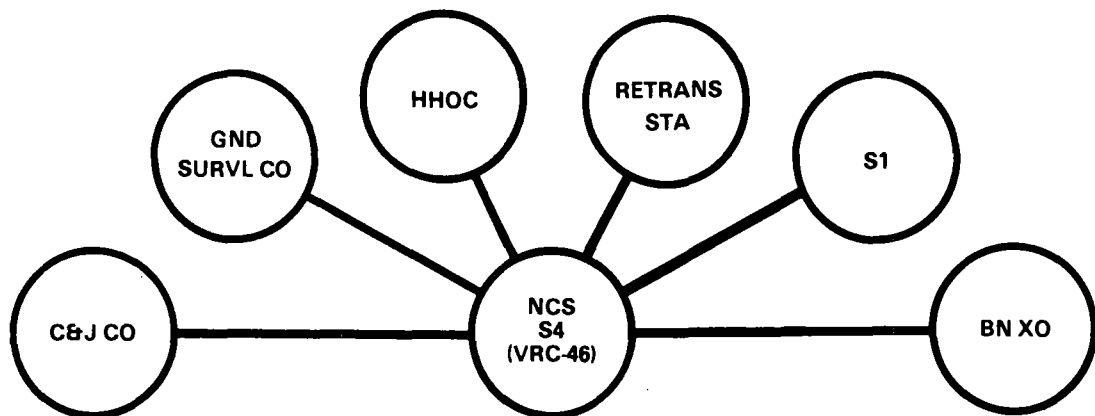
This net provides communications for battalion control of general support assets and provides a back-up communications link between the battalion operations center, the CM&D section, and the Tactical Command Post (TAC CP) section.

MI BATTALION COMMAND NET (FM).



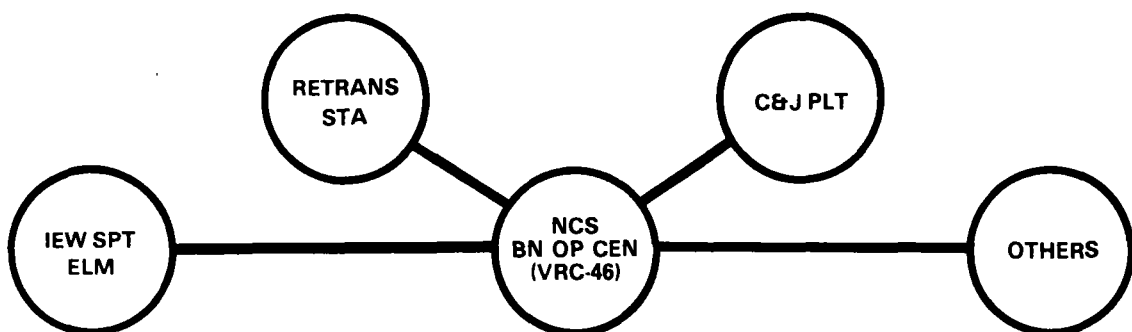
This figure depicts the stations in the MI Battalion Command Net. Traffic passed over this net directs the normal command control of the battalion. Because of distances between stations, a retransmission capability is included.

MI BATTALION ADMINISTRATION/LOGISTICAL NET (FM).



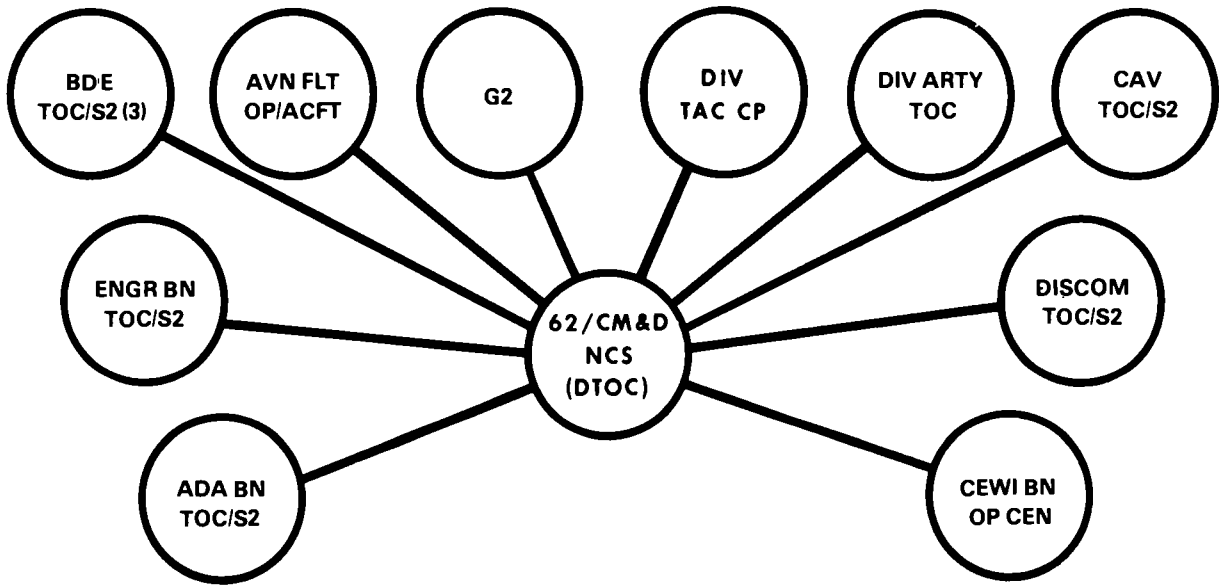
The battalion operates the administration/logistical net to insure the direction of support functions and to allow control, coordination, and direction of the support effort. Because of the dispersion of assets from the division support area to the forward brigades, a radio retransmission station is included in this net.

MI BATTALION OPERATIONS NET (FM).



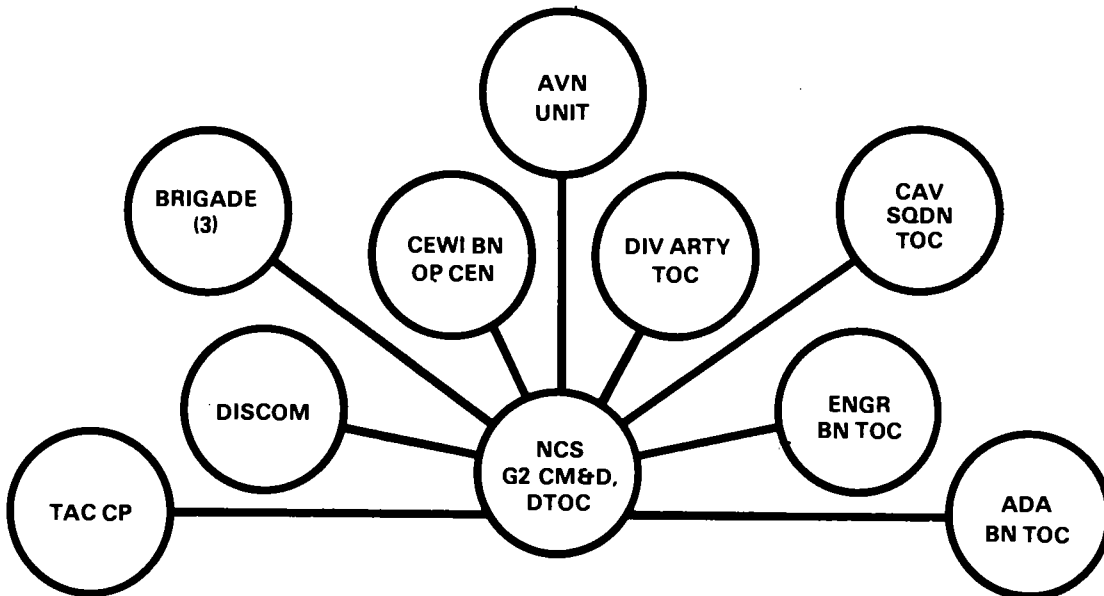
Battalion operations nets are installed to provide communications between the C&J platoons, IEW support elements at the brigade and the battalion operations center. Each of the three nets carries heavy traffic loads because of the quantity of tasking, reporting, and technical control data passed between the battalion operations center and the C&J platoon. Coordination conducted by the IEW support elements at the brigades, with the battalion operations center and the C&J platoon headquarters provide additional traffic loads for this net. Special communications requirements of radar/REMS teams are passed through the IEW support elements to the battalion operations center on this net. Because of the distance between stations, each net is provided a retransmission capability.

DIVISION INTELLIGENCE NET (FM).



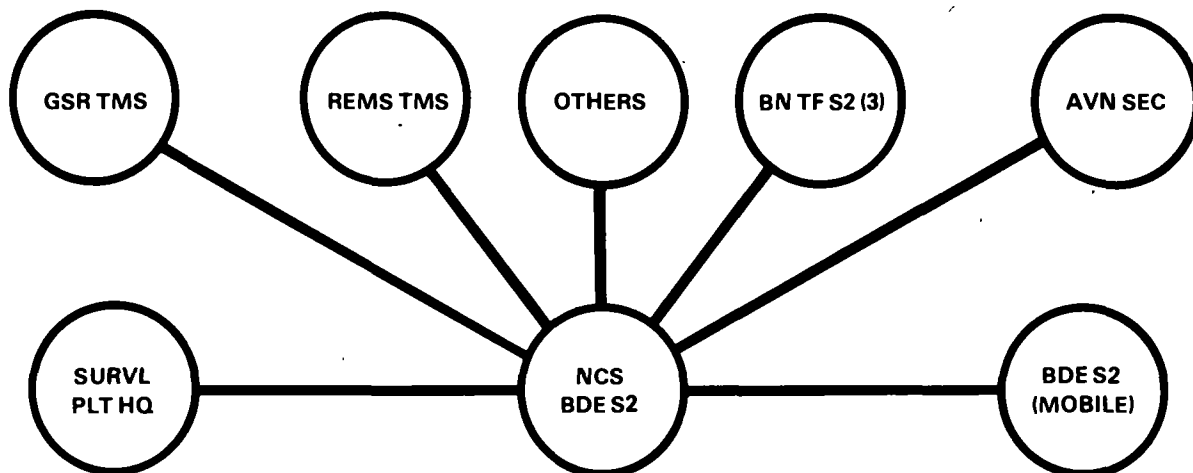
The CM&D section uses this net to disseminate intelligence products and to receive reports of collected information from divisional elements. The battalion operations center also enters this net to monitor reported information and to receive data disseminated by the CM&D section.

DIVISION INTELLIGENCE NET (RADIOTELETYPEWRITER (RATT)).



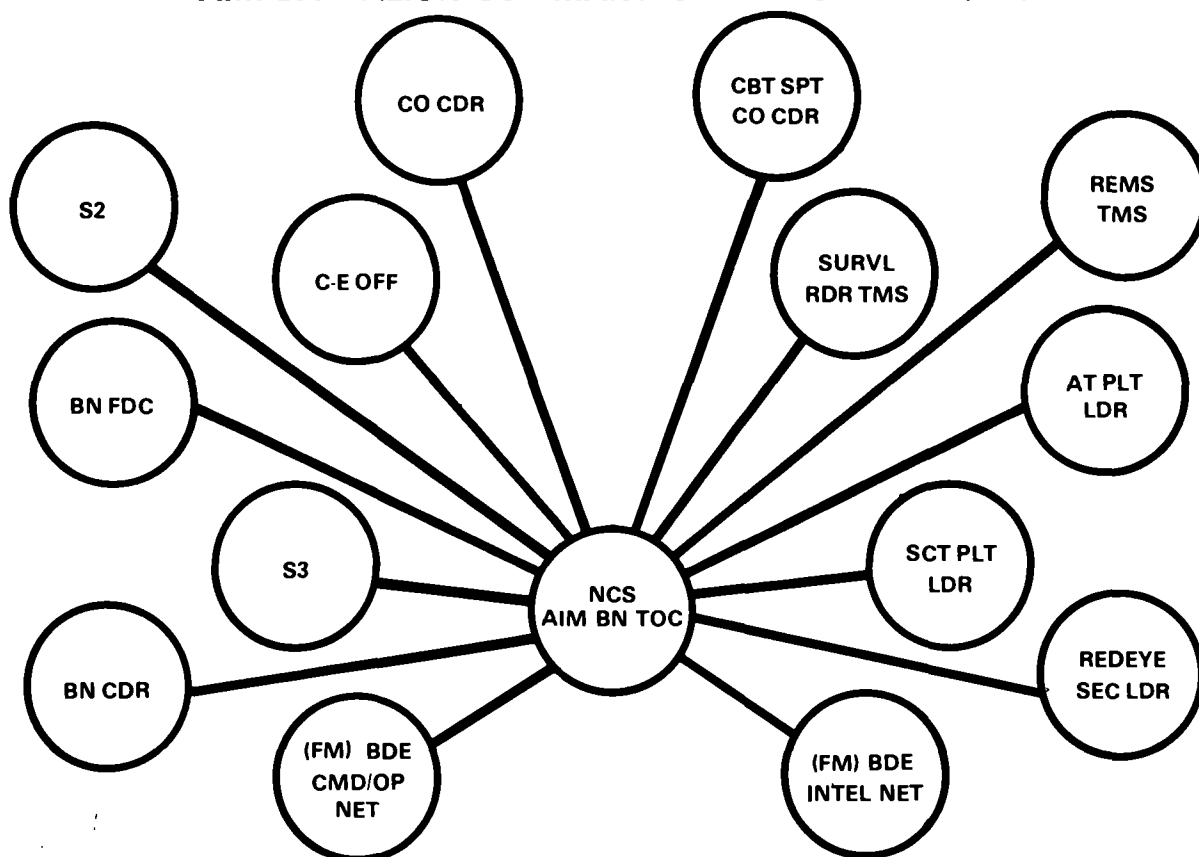
This net provides back-up communications for the dissemination of intelligence and combat information within the division. The G2 station, installed and operated by the division signal battalion, is used by the CM&D section to disseminate intelligence and combat information to all stations. The MI battalion operations station, installed and operated by the radio platoon of the service support company, is used to monitor the traffic on the net and to report combat information and intelligence collected MI assets.

BRIGADE INTELLIGENCE NET (FM).



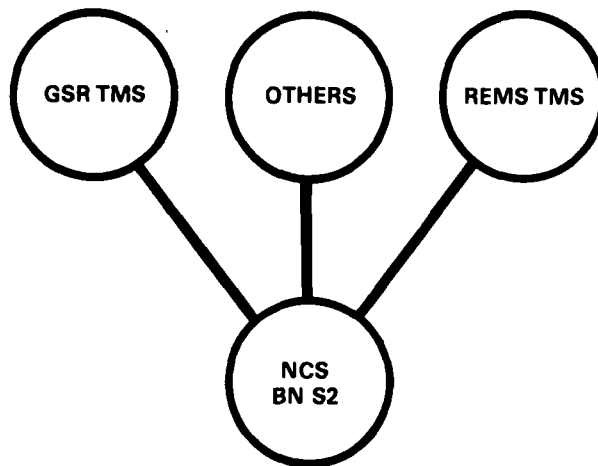
The surveillance platoon headquarters enters the brigade intelligence net to receive tasking from the brigade S2. When GSR/REMS teams are retained under brigade control, they too operate in the brigade net; however, the teams normally are tasked through the surveillance platoon headquarters. Reports generated by the teams are transmitted directly to the brigade S2 and monitored by the platoon headquarters.

AIM BATTALION COMMAND OPERATIONS NET (FM).



GSR and REMS teams attached to battalion task force enter one of the supported battalion's nets, a company net, or a platoon net as directed by the supported unit commander.

AIM BATTALION SURVEILLANCE NET (FM).



A battalion surveillance net (FM) may be established to include attached GSR/REMS teams and other elements of the battalion. The teams enter the net to receive direct tasking and command control and to report combat information.

APPENDIX D

FUTURE DEVELOPMENTS

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REMOTELY MONITORED BATTLEFIELD SENSOR SYSTEM (REMBASS)

The REMBASS is a proposed system that will be deployed to the ground surveillance company and may replace the remote sensors, if developed.

The REMBASS is a modular ground-based, all-weather, day and night battlefield surveillance system that provides divisions, brigades, and battalions with information on activities forward of the FLOT, and provides rear area protection (RAP) within the division zone. The system consists of seven different sensing units, a radio repeater unit, and two different readout units. The sensors and radio repeaters will normally be hand-emplaced, but can be emplaced by Army aircraft and artillery.

These sensors respond to seismic, thermal, and acoustic energy, and to magnetic field changes. Sensors process each response and provide detection or classification information. This information is transmitted in short digital messages by an internal VHF transmitter. The sensor transmits to the receiver either directly or through radio repeaters. Messages at the receiver are demodulated, decoded, displayed, and recorded on a time-phased record of sensor activities.

The REMBASS can detect, identify, and classify targets as dismounted troops or wheeled or tracked vehicles. The classifying sensors can detect troops within a distance of 50 meters and moving vehicles at all ranges out to 500 meters.

The sensors and repeaters can transmit the target data at least 15 km, line-of-sight, from ground element to ground element. Both can transmit target data 100 km ground-to-air, as long as line-of-sight is maintained.

The REMBASS can be used for alerting and cuing other divisional surveillance and reconnaissance assets. It also can serve as the primary surveillance means when the air environment is nonpermissive or when ground surveillance radar cannot operate.

The nettable radar subsystem will consist of lightweight, mobile MTI radars capable of narrow band transmission of the information acquired by the radars.

GLOSSARY OF SHORTENED WORD FORMS AND ABBREVIATIONS

ACCP	Army Correspondence Course Program
AIM	Armored, Infantry, Mechanized Infantry
C-E	Communications-Electronics
CEOI	Communications-Electronics Operation Instructions
CEWI	Combat Electronic Warfare and Intelligence
CFA	Covering Force Area
C&J	Collection and Jamming
CM&D	Collection Management and Dissemination
COMSEC	Communications Security
CP	Command Post
DS	Direct Support
DTOC	Division Tactical Operations Center
EAC	Echelons Above Corps
ECCM	Electronic Counter-Countermeasures
ECM	Electronic Countermeasures
EPW	Enemy Prisoner of War
ETV	Educational Television
EW	Electronic Warfare
FLOT	Forward Line of Own Troops
GS	General Support
GSR	Ground Surveillance Radar
GTA	Graphic Training Aid
HHOC	Headquarters, Headquarters and Operations Company
HTF	How To Fight
IEW	Intelligence and Electronic Warfare
JB	Job Books
MBA	Main Battle Area
MI	Military Intelligence
MST	Mobile Support Team
NBC	Nuclear, Biological, Chemical
OPSEC	Operations Security
RATT	Radio Teletypewriter
REMBASS	Remotely Monitored Battlefield Sensor System
REMS	Remote Sensors
RF	Radio Frequency
SIGINT/EW	Signals Intelligence/Electronic Warfare
SIGSEC	Signals Security
SM	Soldier's Manual
SOJT	Supervised On-The-Job Training
TACCP	Tactical Command Post
TASC	Training and Audio-Visual Support Centers
TCAE	Technical Control and Analysis Element
TEC	Training Extension Courses
TOE	Table(s) of Organization and Equipment
TSA	Training Support Activity

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24 JULY 1981

By Order of the Secretary of the Army:

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*General, United States Army
Chief of Staff*

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**GROUND SURVEILLANCE COMPANY,
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(COMBAT ELECTRONIC WARFARE
INTELLIGENCE) (DIVISION)**